Service Source

iMac (24-inch)

Updated 15 January 2007

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iMac (24-inch)

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 Service Source

Take Apart

iMac (24-inch)

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General Information

What’s New

January 2007

- The “**No Power**” symptom in Troubleshooting has been updated. If your computer won’t turn on, try removing and reinstalling the SO-DIMMs.

December 2006

- When replacing the logic board, check that two spacers and a piece of aluminum tape have been installed in manufacturing. If the spacers are not present, refer to the **logic board replacement procedure** or inbox notice that ships with the logic board.

31 October 2006

- Troubleshooting has been updated with a new symptom, “**Fans running at full speed after computer turns on.**” Note: The customer may have entered a diagnostic mode that causes the fans to run at full speed. This symptom is very easy to resolve at the customer level.

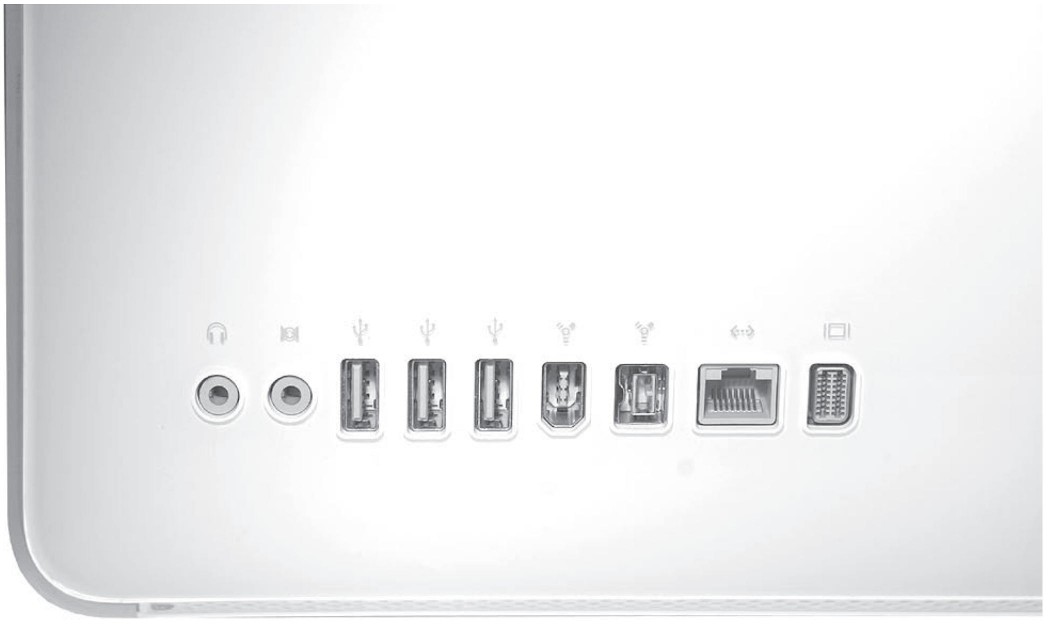
17 October 2006

- 9mm screws were added to the screw chart and to the logic board take apart sections

6 September 2006

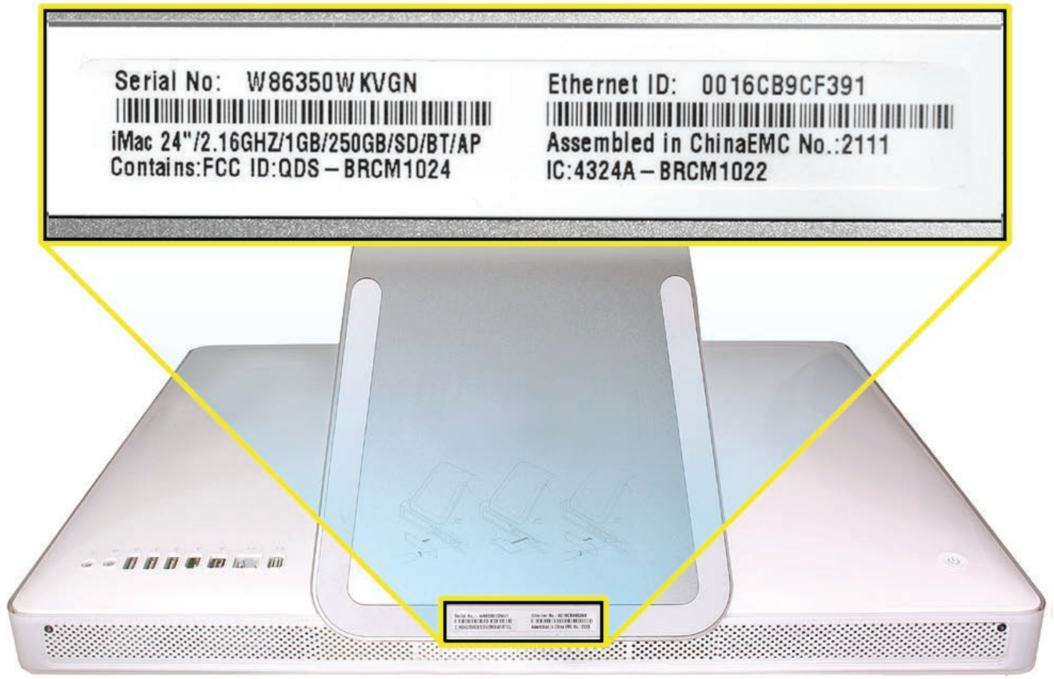
- The iMac (24-inch) product introduction.

Product Views



How to identify your iMac

On the bottom of your iMac stand, you'll find a label with the serial number printed on it:


Serial No: W86350WKVGN
iMac 24"/2.16GHZ/1GB/250GB/SD/BT/AP
Contains:FCC ID:QDS – BRCM1024
Ethernet ID: 0016CB9CF391
Assembled in ChinaEMC No.:2111
IC:4324A – BRCM1022

This label also provides the computer configuration and an "EMC" number (EMC No.). The EMC number for the iMac (24-inch) computer is 2111. The EMC number is unique for different iMac models.

To confirm the configuration from the Apple menu, choose About This Mac. The Processor listing will show the speed of the processor followed by the processor type.

The iMac (24-inch) has several features that distinguish it from earlier iMac models:

- 2.16 GHz or 2.33 GHz Intel Core 2 Duo processor
- Mobile Express Module (MXM) type II video card: NVIDIA GeForce 7300 GT, 128 MB or NVIDIA GeForce 7600 GT, 256 MB
- 24-inch TFT 8:5 aspect ratio flat panel display (1920x1200 native resolution)
- 250 or 500 GB hard disk with serial ATA 150 MB/s interface
- Up to 3.0 GB system memory

Note About Images in This Manual

Because a pre-production model was used for most of the images shown in this manual, you may notice small differences in appearance between the image pictured and the computer you are servicing. However, the steps and sequence are the same unless noted.

Tools Required

The following tools are required to service the computer:

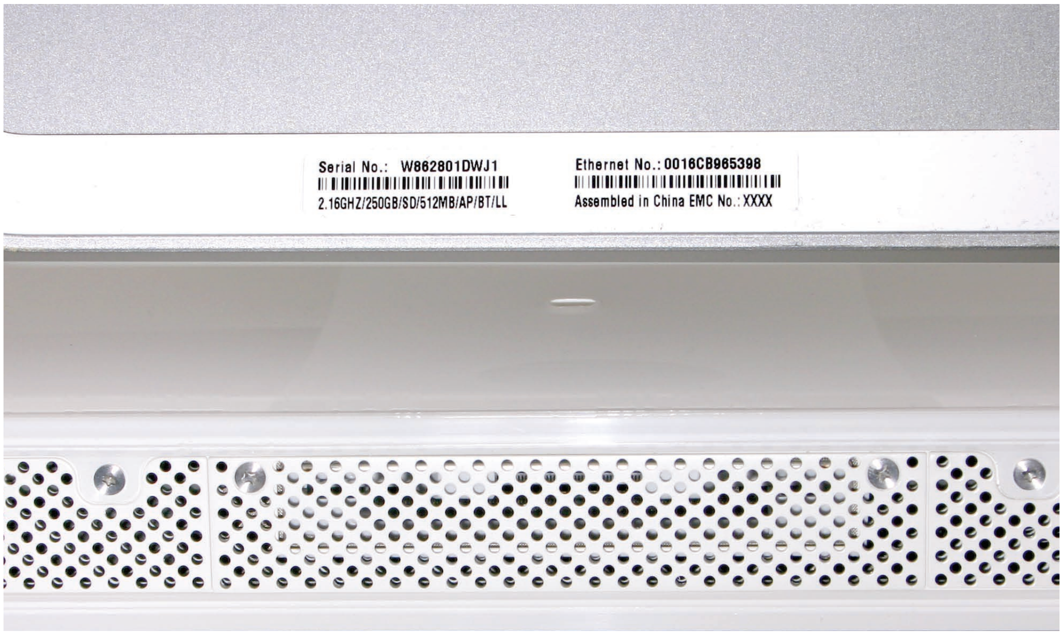
- ESD-safe workstation and mat
- Soft, clean towel or cloth (to protect the display and removed parts from scratches)
- Access card (Apple part number 922-7172)
- Black stick (or other nonconductive nylon or plastic flat-blade tool)
- Phillips #1 screwdriver
- Phillips #2 screwdriver
- Torx T6 screwdriver (magnetized)
- Torx T8 screwdriver (magnetized)
- Torx T10 screwdriver (magnetized)
- Flat-blade screwdriver
- Permanent ink felt-tip pen

Orientation

For most repairs, the unit should be placed screen-side up, with the bottom facing toward you. Most photos in this manual reflect that orientation. The SO-DIMM slot is located beneath the front bezel and is more easily accessed with the unit laying down on a soft, clean cloth.

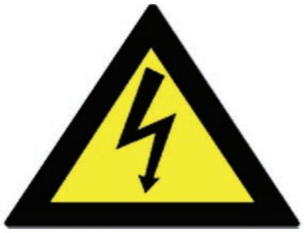
Serial Number Location

The computer's serial number is located on the bottom of the computer stand.


Serial No.: W862801DWJ1
2.16GHZ/250GB/SD/512MB/AP/BT/LL
Ethernet No.: 0016CB965398
Assembled in China EMC No.: XXXX

Safety

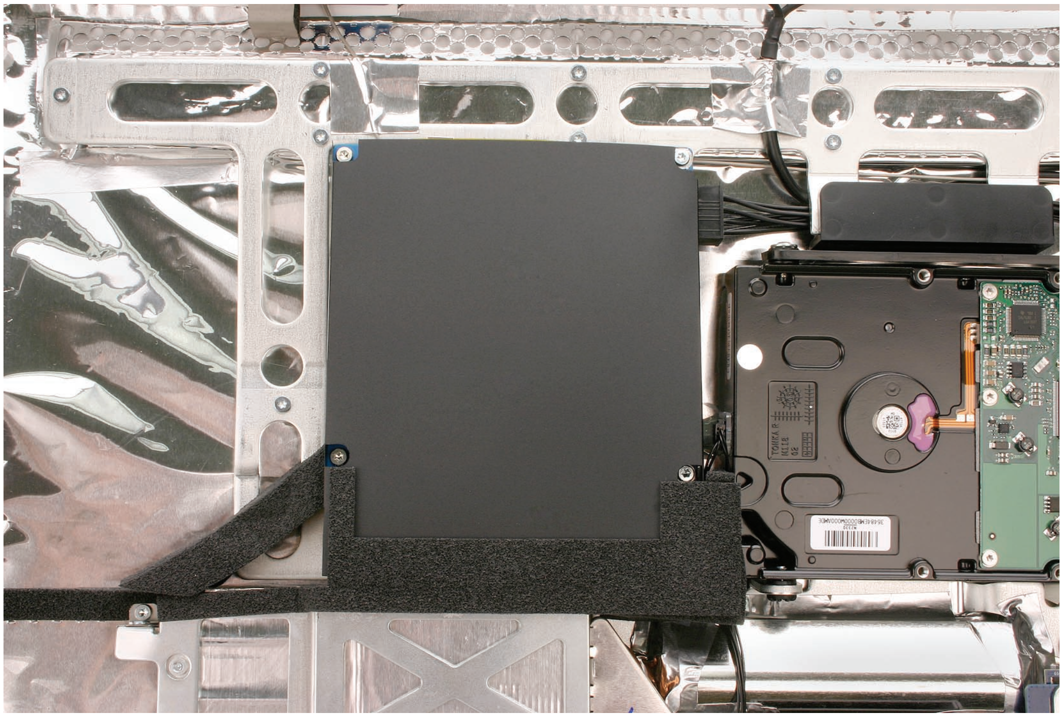
Warning: When the computer is under power, be aware that the power supply contains high voltages that pose a potential hazard to your personal safety. Never work on or near the power supply with the unit powered on; and as a further precaution, always make sure the unit is unplugged when working on it with the front bezel removed.



WARNING: HIGH VOLTAGE
Text or photographs marked by this symbol indicate that a potential hazard to your personal safety exists from a high voltage source.

The AC/DC power supply board is a high-voltage source with the unit under power, and remains powered up whenever the system is plugged in, whether or not the system is turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

- Disconnect power to the system before performing maintenance.
- Don't work alone. In the event of an electrical shock, it is important to have another individual present who can provide assistance.
- Keep one hand in your pocket when working on any computer that is plugged in. This will help ensure that your body does not provide a path to ground in the event that you accidentally make contact with the line voltage.
- Don't wear jewelry, watches, necklaces, or other metallic articles that could present a risk if they accidentally make contact with the power supply circuitry.



Access Door

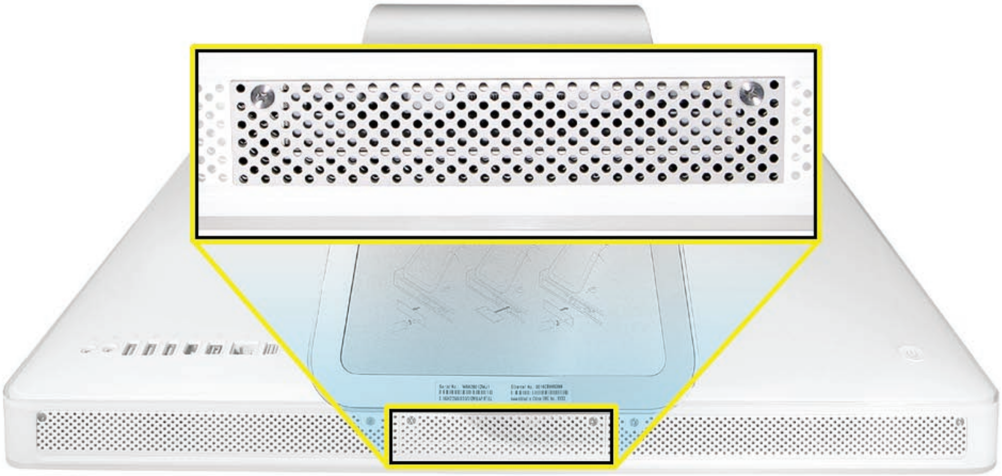
Tools

- Phillips #2 screwdriver
- ESD-safe workstation and mat
- Soft , clean towel or cloth

Preliminary Steps

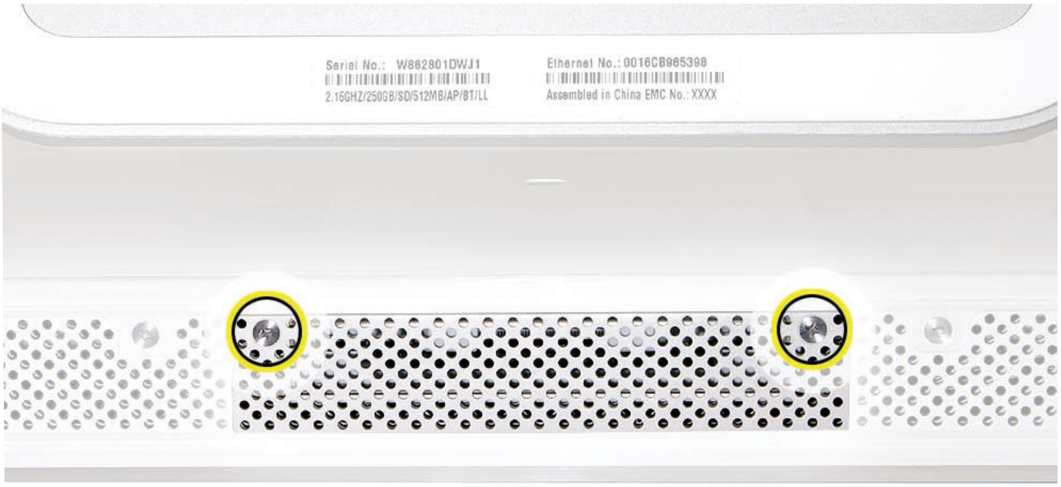
Before you begin, place the computer face down so that the bottom is facing you.

Part Location



Removing the Access Door

1. Raise the stand and use a Phillips #2 screwdriver to loosen the two captive access door screws.
2. Remove the access door.


Serial No.: W862801DWJ1
2.16GHZ/250GB/SD/512MB/AP/BT/LL
Ethernet No.: 0016CB965398
Assembled in China EMC No.: XXXX

Replacing the Access Door

1. Lift the stand out of the way.
2. Position the access door on the rear housing over the memory compartment.
3. Use a Phillips #2 screwdriver to tighten the captive screws.

Memory

This computer comes with a minimum of 512 MB of 667 GHz PC2-5300 Double Data Rate 2 (DDR2) Small Outline Dual Inline Memory Modules (SO-DIMMs). It has two slots that can accept DIMMs. The slots are stacked (top and bottom) on the logic board behind the access door. A 512 MB, 1 GB, or 2 GB memory module may be installed for a maximum of 3 GB of memory. Although you can install up to 4 GB of memory, the system supports no more than 3 GB.

Tools

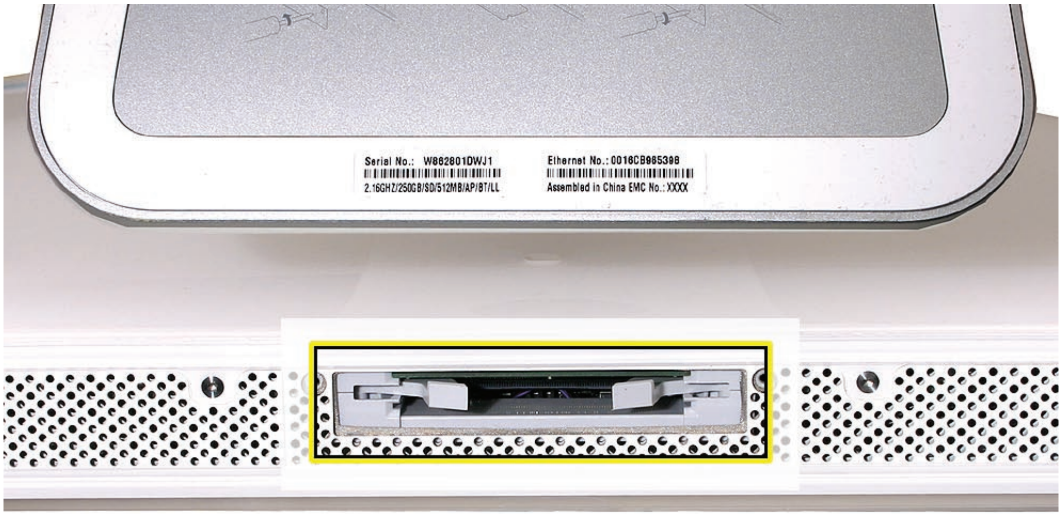
- Phillips #2 screwdriver
- ESD mat
- Soft , clean towel or cloth

Preliminary Steps

Before you begin, remove the **access door**.

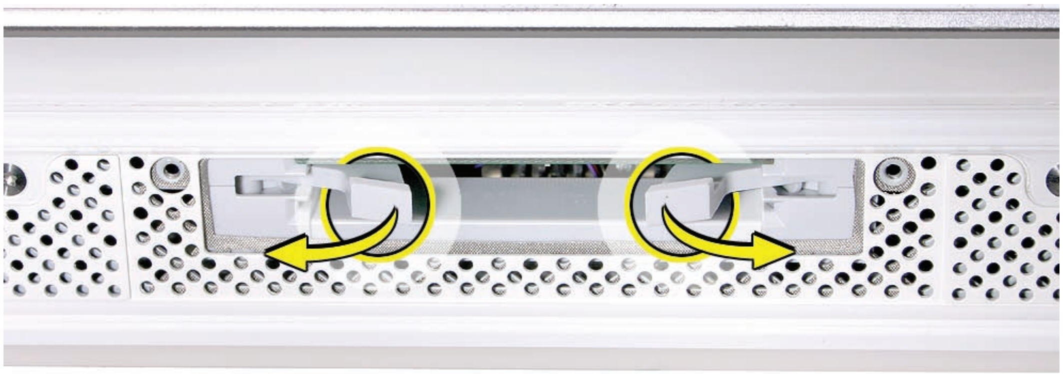
Warning: Always shut down the computer and remove the power cord before installing memory. Do not attempt to install memory in the computer while it is plugged in.

Part Location


Serial No.: W862801DWJ1
2.16GHZ/250GB/SD/512MB/AP/BT/LL
Ethernet No.: 0016CB985398
Assembled in China EMC No.: XXXX

Removing the Memory

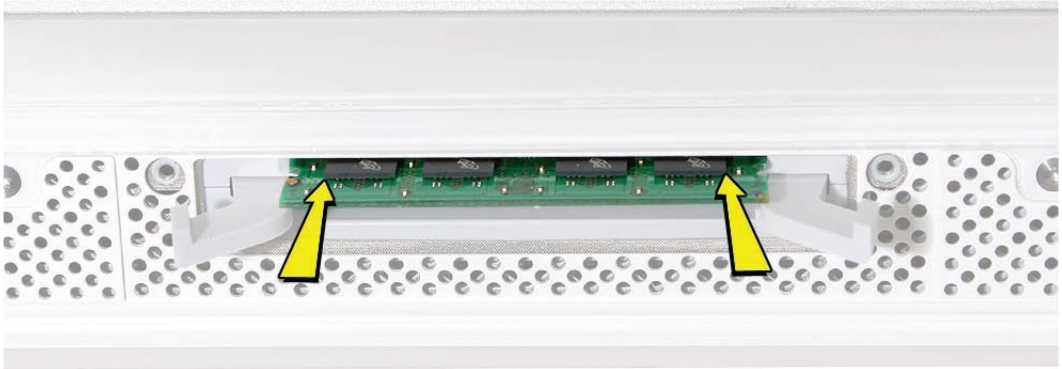
1. Shut down the computer, and disconnect all cables including the power cord.
2. Holding the sides of the computer, lay it face down on a soft, clean cloth.
3. After removing the access door, touch the metal frame around the memory compartment to discharge any static electricity from your body.
   Important: Always discharge static before you touch any parts such as the memory board. To avoid generating static electricity, do not walk around the room until you have finished replacing the memory.
4. Pull the two levers in the memory compartment toward you. If a memory module is installed in the slot, pulling the levers will eject it. **Note:** The levers are used to remove memory not to install memory. Always install memory by hand.



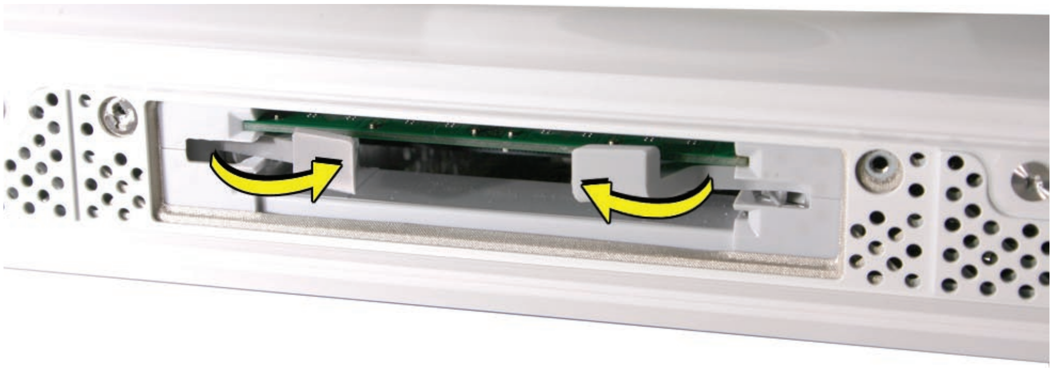
5. Set the memory module aside.

Replacing the Memory

1. Make sure the DIMM levers are all the way open.
2. With the computer face down, orient the DIMM with the notch on the left.
3. With your fingers, press the DIMM fully into the slot until you hear a click.



4. Do not use the DIMM levers to push in the DIMM. Trying to push the DIMM into the slot using the levers may damage the SDRAM DIMM. You'll hear a slight click when the memory is fully seated. After the memory is fully seated, close the levers.



5. Replace the access door on the memory compartment.
6. Use a Phillips #2 screwdriver to tighten the captive screws on the access door.
7. Make sure the computer recognizes the new memory by opening System Profiler, clicking More Info, and clicking Memory.

Front Bezel

Tools

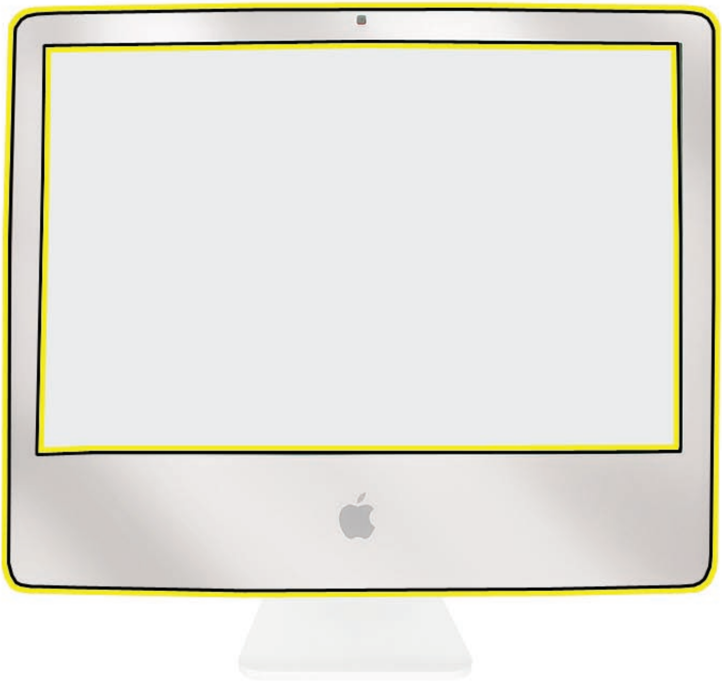
This procedure requires the following tools:

- Torx T8 screwdriver
- Soft, clean towel or cloth
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, remove the **access door**.

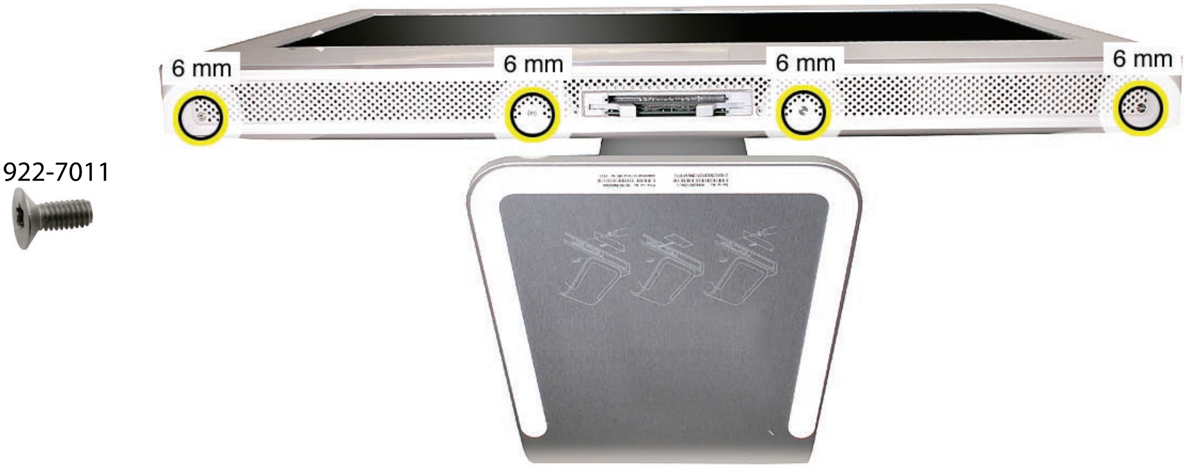
Part Location



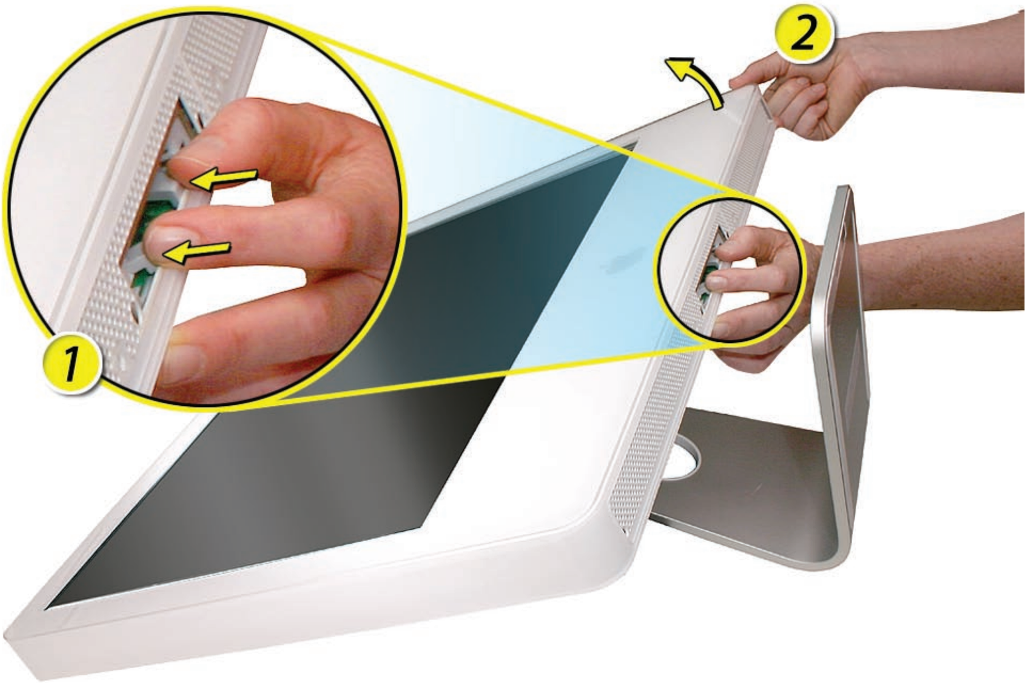
Removing the Front Bezel

1. Place the computer on the rear cover with the stand facing you.
2. Tilt up the front bezel and remove the four screws along the bottom.

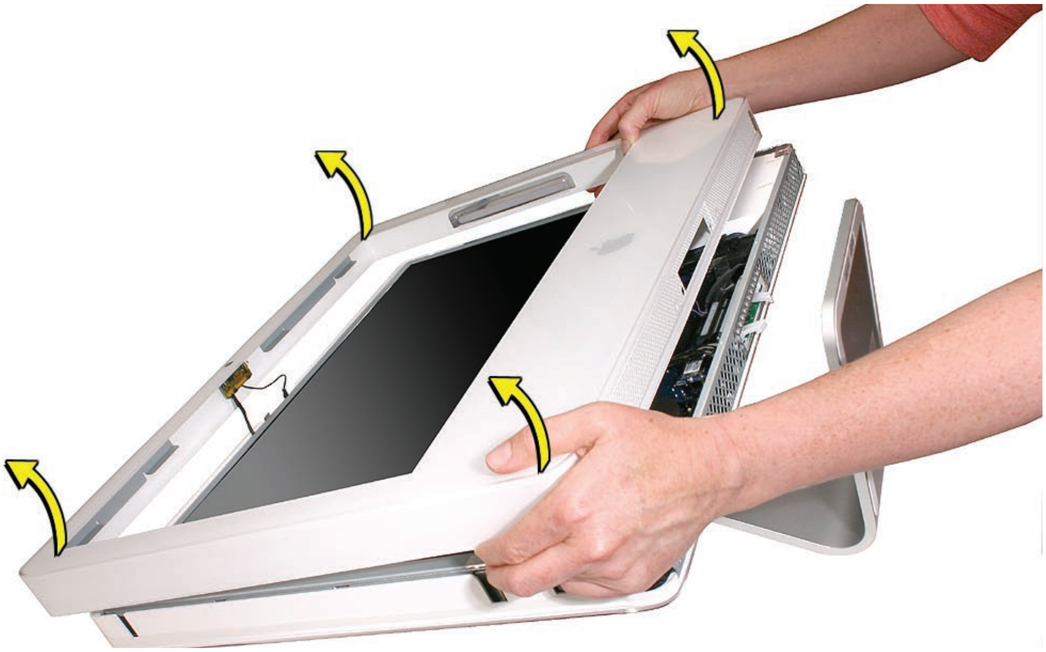
922-7011



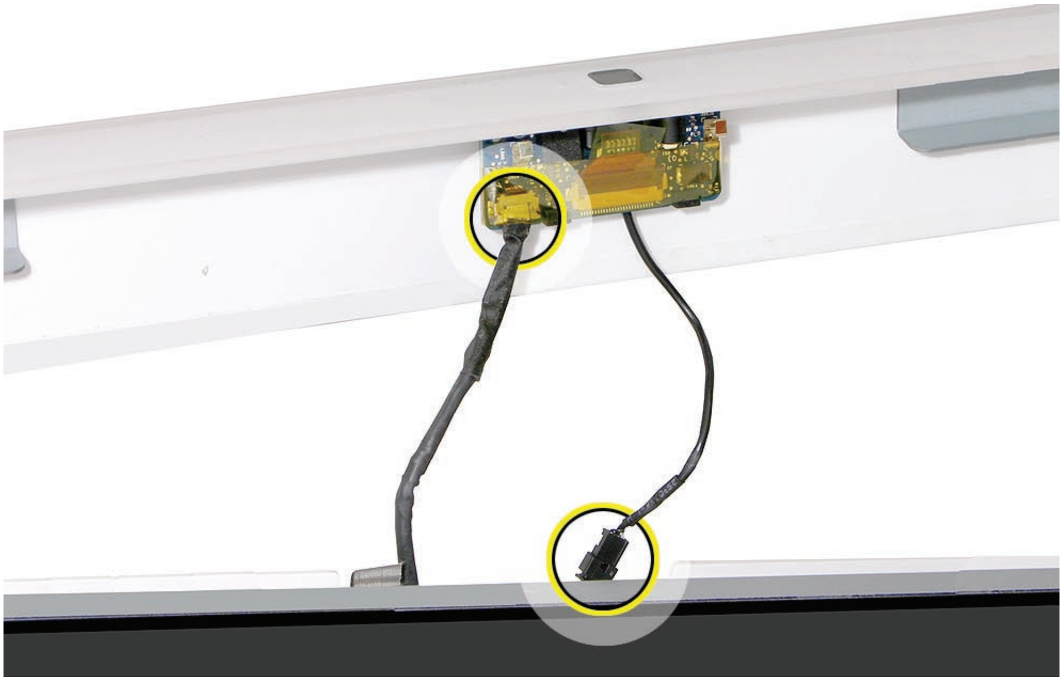
3. While holding the memory card levers closed (not protruding from the access door opening), start tilting up the lower end of the bezel.



4. With the lower corners loosened, lift up—but do not remove—the bezel.
   Caution: To prevent LCD panel damage, never press on the display face.



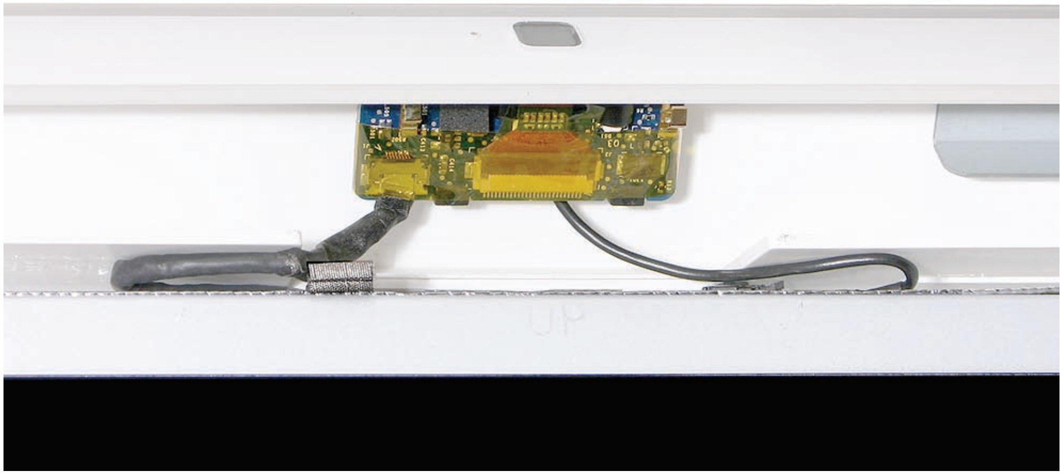
5. Lift up the top of the bezel and notice the connected microphone and camera cables. Without straining the cables, hold the bezel up, and disconnect the camera cable from the camera board and the microphone cable from the cable extension.



6. Lift the front bezel off the computer. **Note** that a replacement front bezel includes the following:
   - camera lens
   - camera board
   - camera board bracket
   - microphone cable
   - sensor
   - gaskets
   - slot-load drive felt
   - metal brackets

Replacing the Front Bezel

1. When installing the front bezel, connect the camera and microphone cables and tuck the cables into the computer housing. Carefully lower the bezel onto the computer, and make sure the cables cannot be pinched.



2. Hold the memory ejector levers closed as you lower the front bezel down completely.
3. Replace the four bezel mounting screws along the bottom of the computer.
4. Replace the access door; tighten the two captive screws.

Camera Board

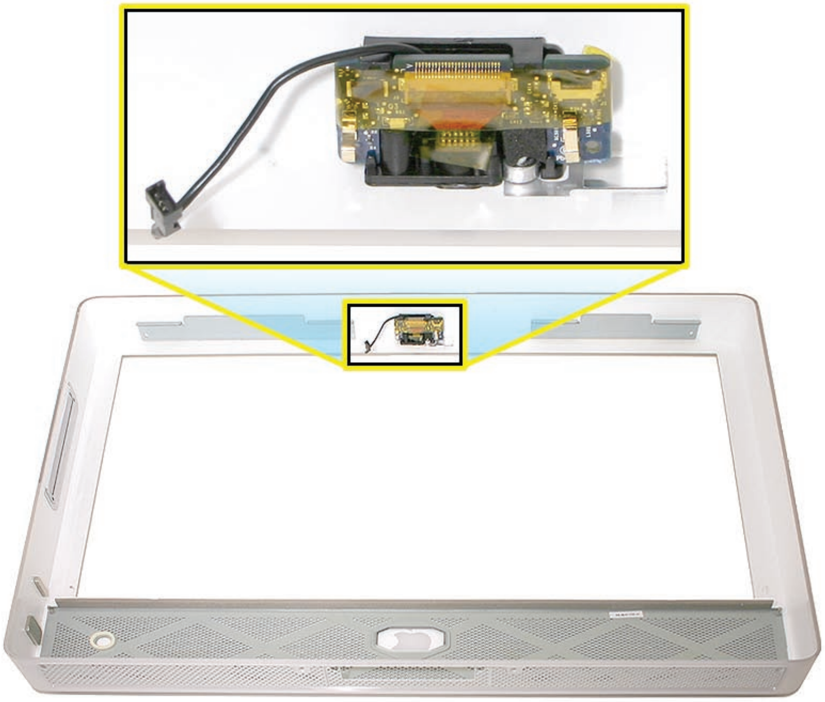
Tools

- Torx T6 screwdriver
- ESD mat, soft , clean towel or cloth

Preliminary Steps

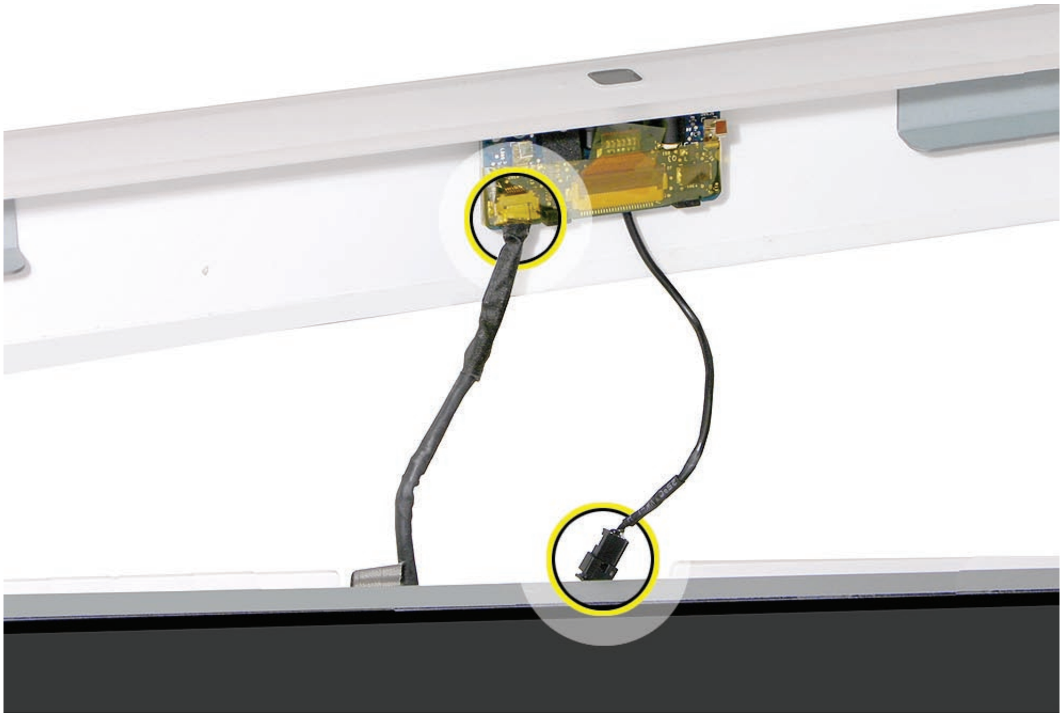
Before you begin, remove the access door and front bezel.

Part Location

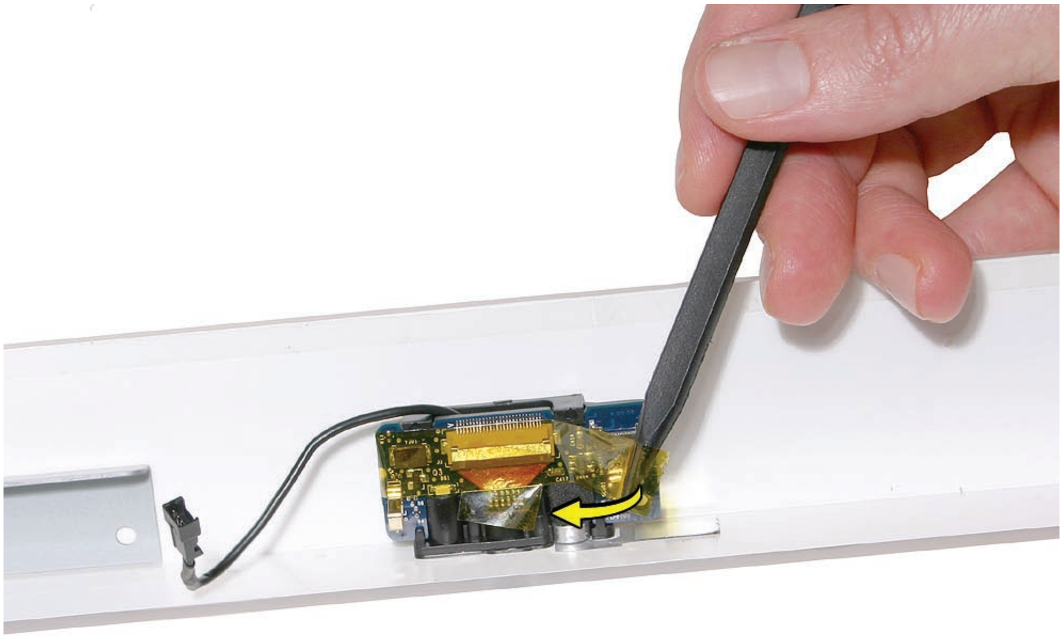


Removing the Camera Board

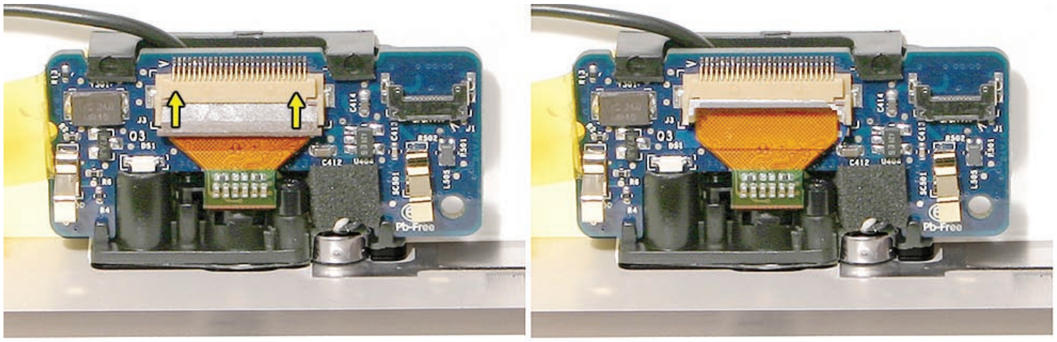
1. The camera board and cables are visible as you lift the front bezel off the computer.
2. Disconnect the camera and microphone cables.



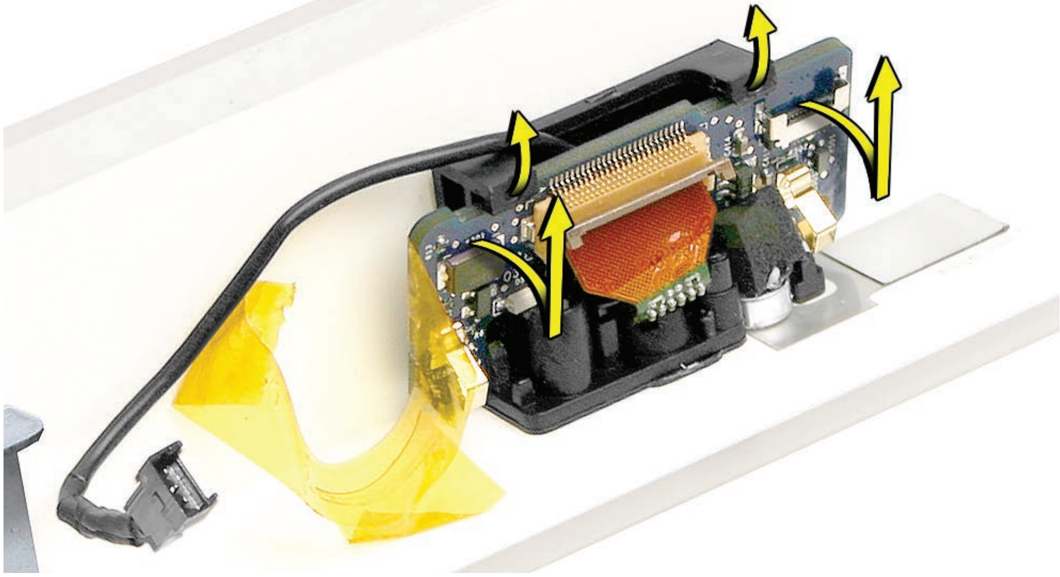
3. With a black stick, peel up the tape that runs the length of the camera board.



4. With your fingernail or a black stick, lift up the flex cable locking hinge.



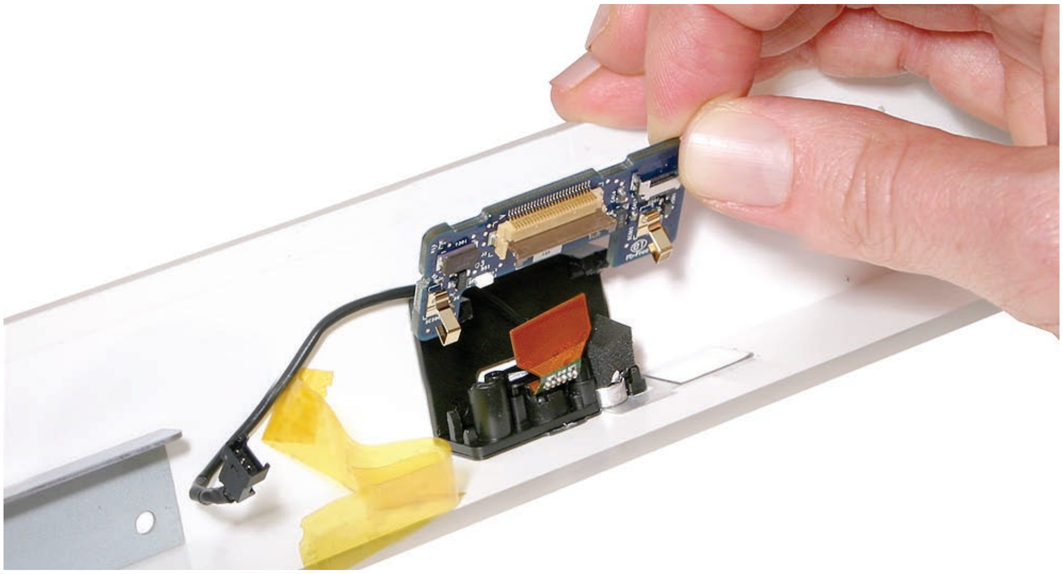
5. With your thumbs, flex up the two tabs on the plastic mounting bracket as you use your index fingers to tilt the board forward and up out of the bracket.



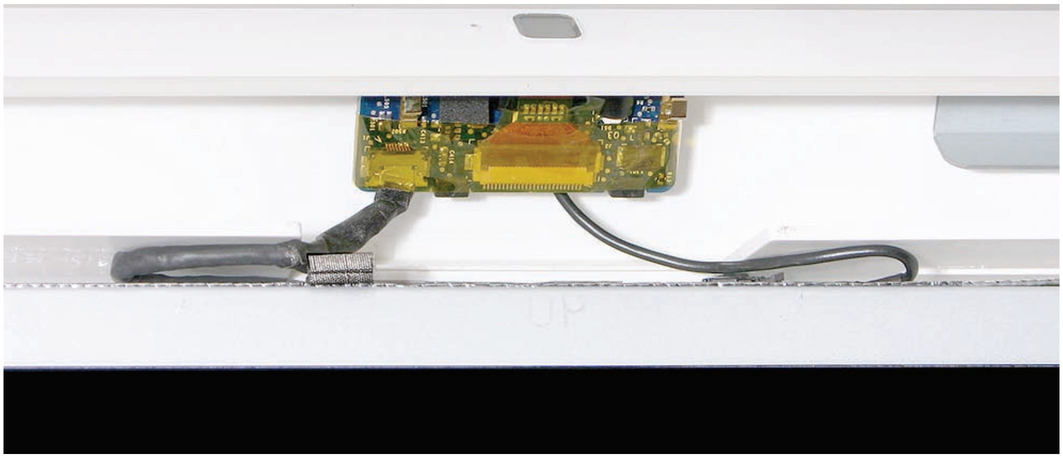
6. Remove the camera board from the front bezel.

Replacing the Camera Board

1. Position the camera board in the plastic bracket. Make sure the flex cable is not pinched as you install the board.



2. Snap the board into the mounting bracket and lock the flex cable connector.
3. Connect the camera and microphone cables.
4. Reapply the tape across the length of the camera board.
5. Tuck the camera board cables neatly into the channel on the rear housing.



6. Holding the memory ejector levers closed, lower the font bezel down.
7. Replace the bezel screws along the bottom of the computer.
8. Replace the access door; tighten the two captive screws.

Battery

Tools

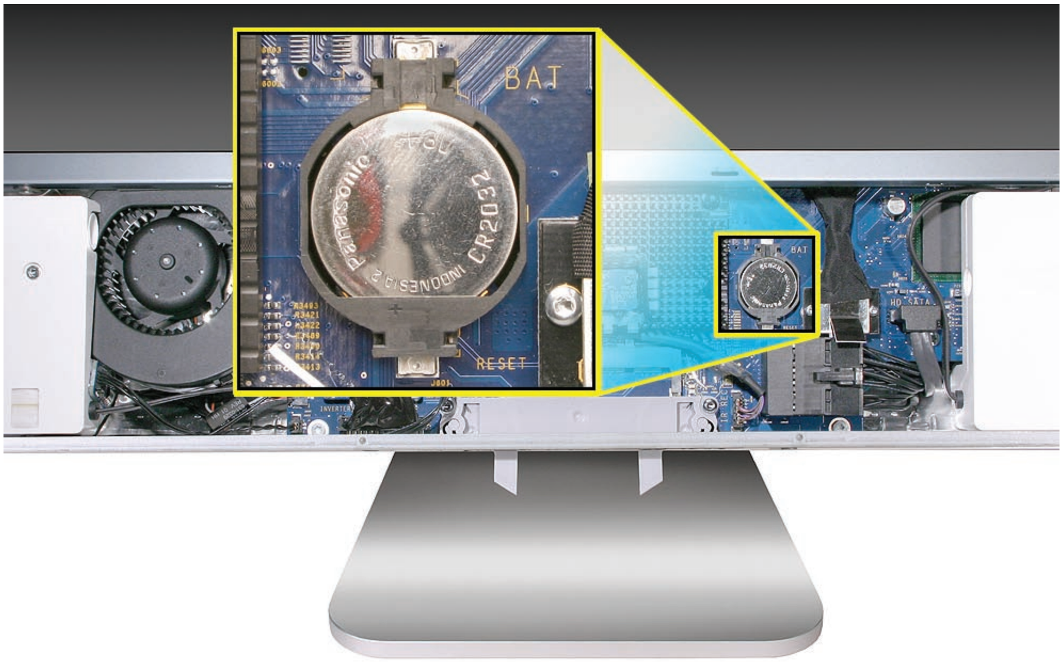
The only tool required for this procedure is a black stick (or other nonconductive plastic or nylon tool).

Preliminary Steps

Before you begin, remove the following:

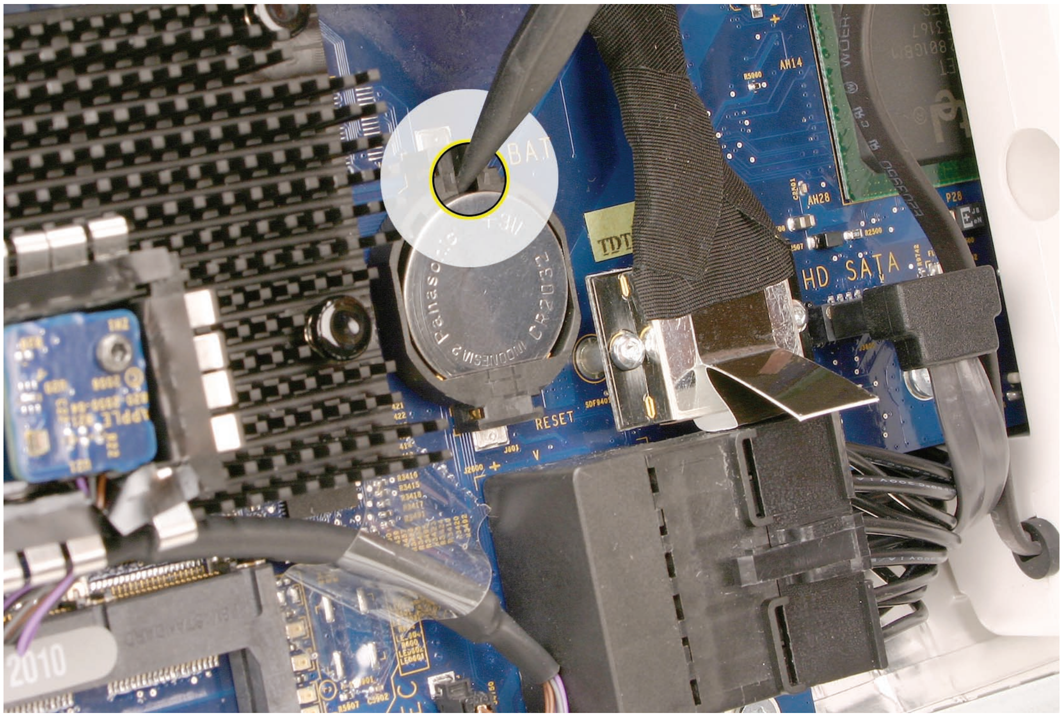
- Access door
- Front bezel

Part Location

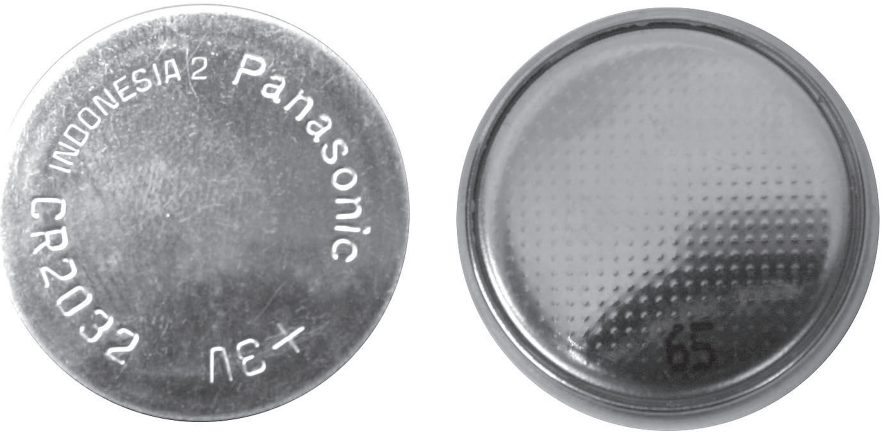


Removing the Battery

1. Use a black stick to pry out the battery from the battery socket on the logic board.

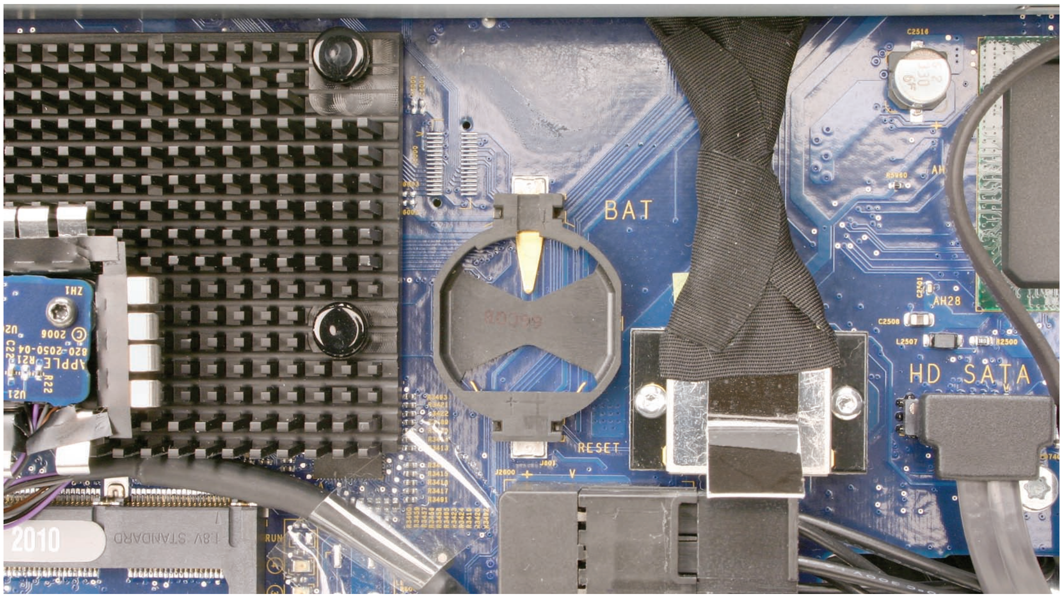


2. Before installing the battery, make sure the side with the engraved markings (+ side) is up .


Panasonic
INDONESIA 2
CR2032
+3V
65

Replacing the Battery

1. Make sure the battery socket is open and free of dust.



2. Press the battery into the socket. While holding the memory eject levers closed, replace the front bezel.
3. Replace the access door.

Ambient Light Sensor (ALS) Board

Tools

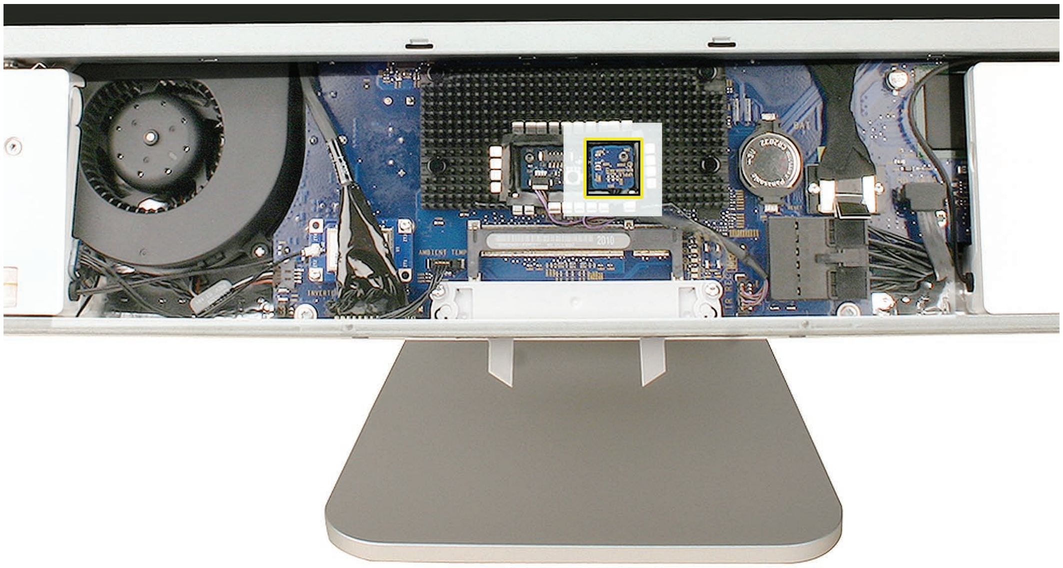
The only tool required for this procedure is a Torx T6 screwdriver.

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel

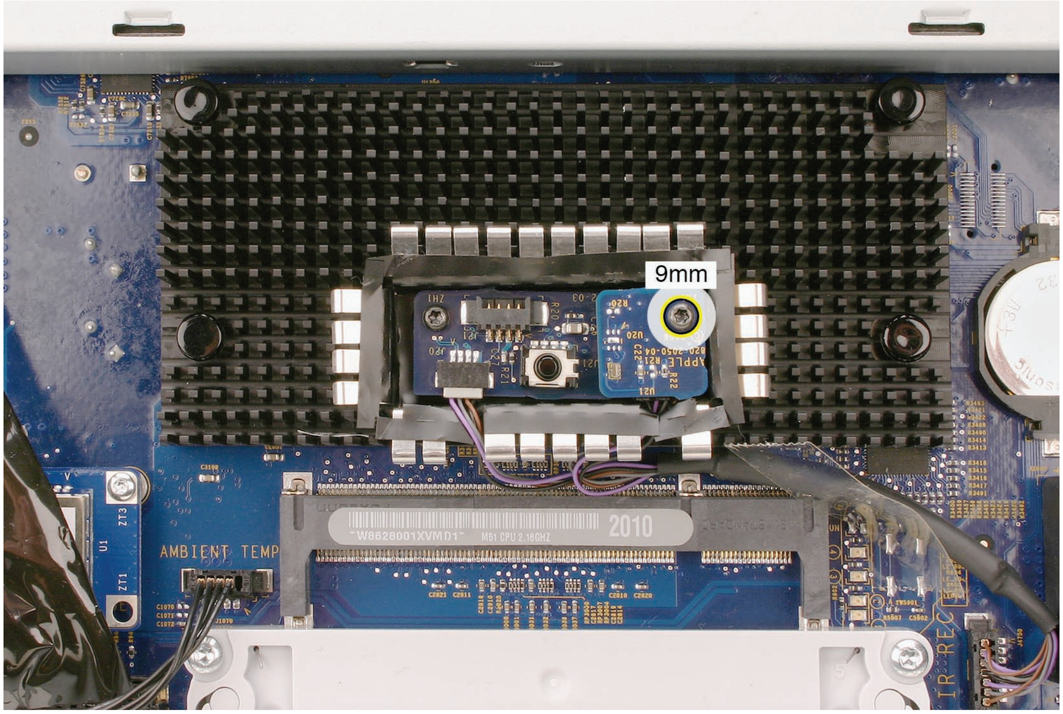
Part Location



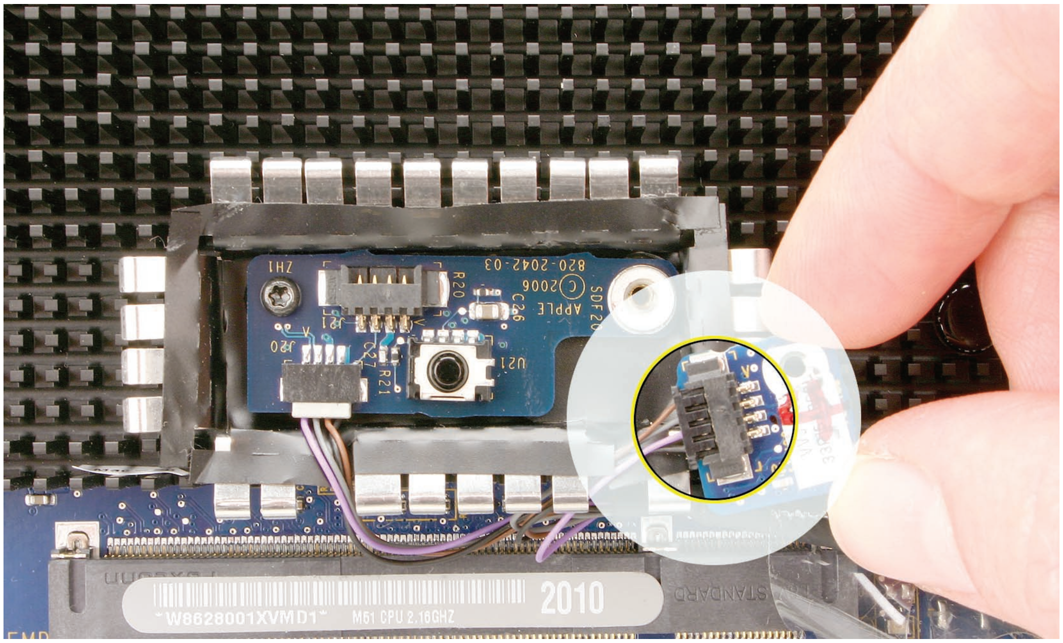
Removing the ALS Board

1. Remove the 9-mm long T6 screw from the top right corner of the ALS board.

922-7806

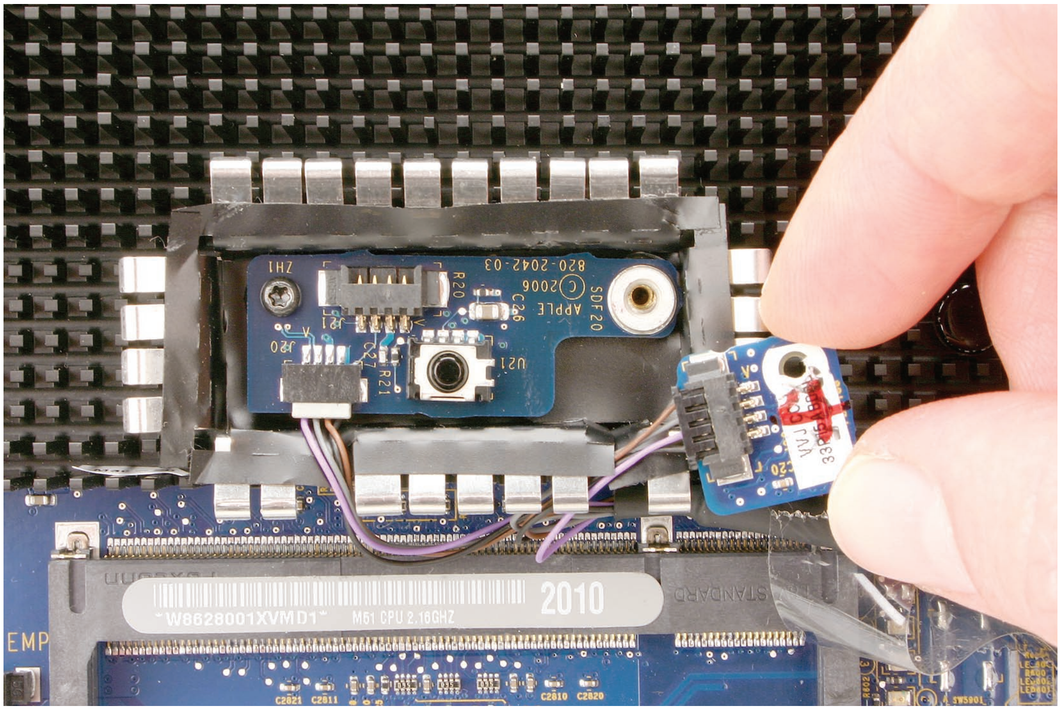


2. Tilt out the ALS board, and disconnect the IR/ALS cable from the board. Lift the ALS board from the IR board and IR shield.



Replacing the ALS Board

1. Connect the IR cable to the ALS board.



2. Install the ALS board and screw.
3. While holding the memory eject levers closed, replace the front bezel.
4. Replace the access door.

IR (Infrared) Board

Tools

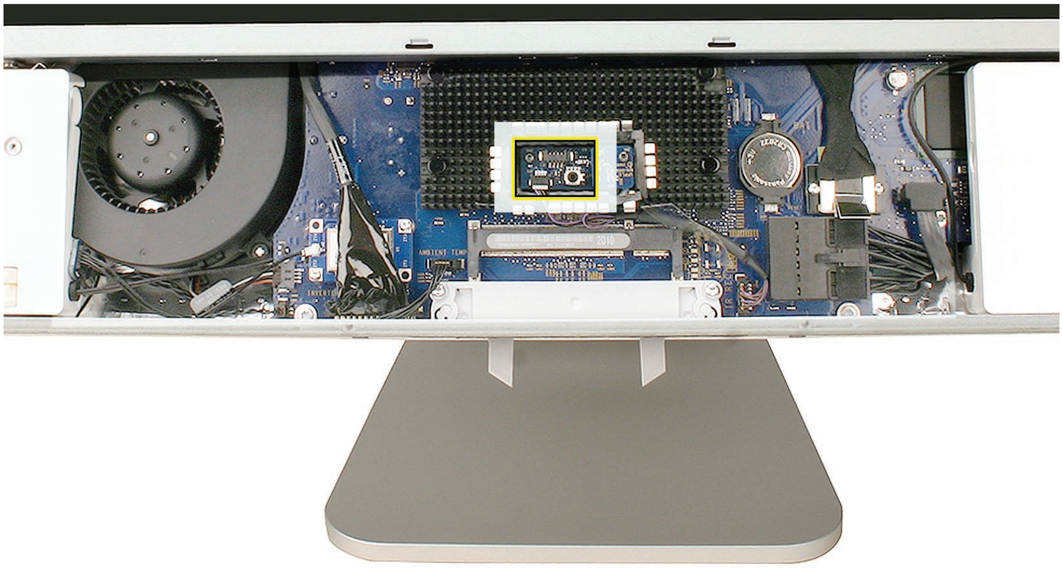
The only tool required for this procedure is a Torx T6 screwdriver.

Preliminary Steps

Before you begin, remove the following:

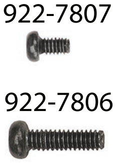
- Access door
- Front bezel

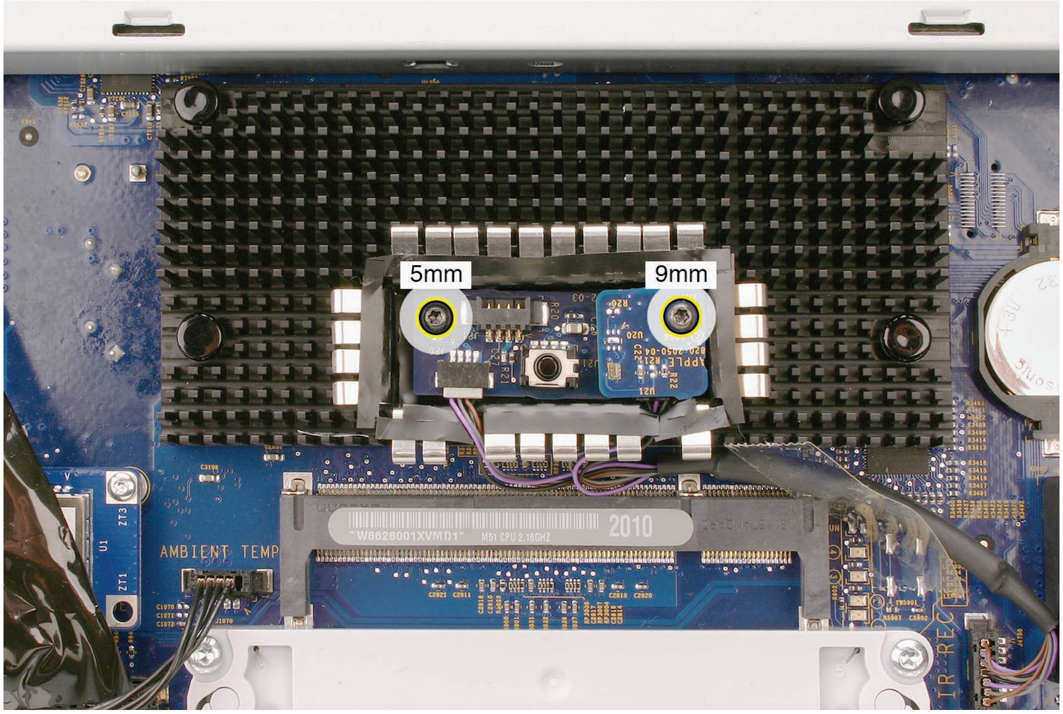
Part Location



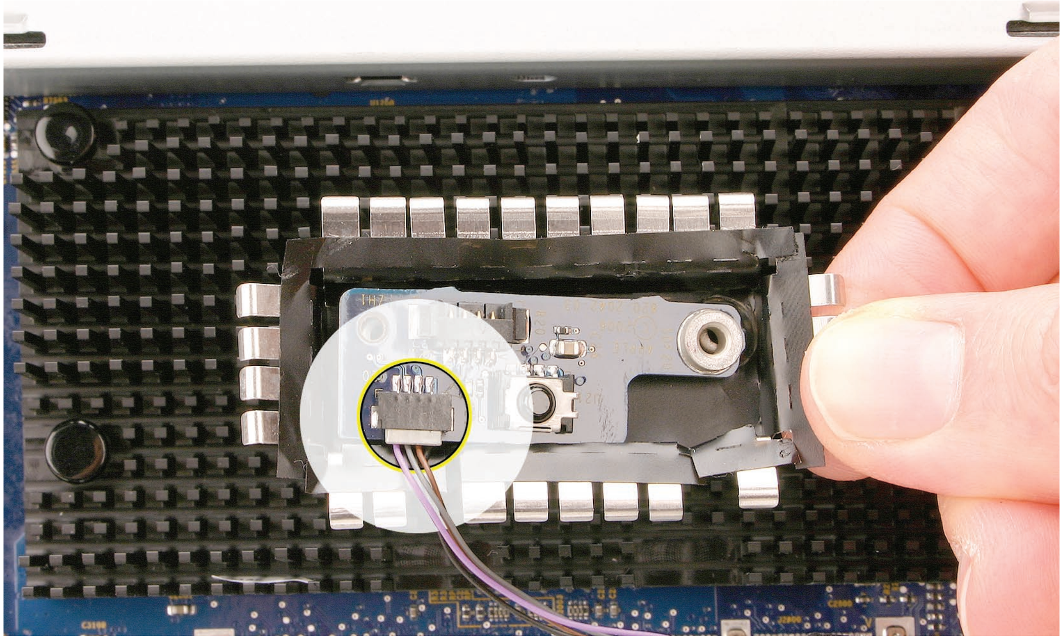
Removing the IR Board

1. Remove the two T6 screws from the top outer corners of the IR and ALS board. Set aside the square ALS board.

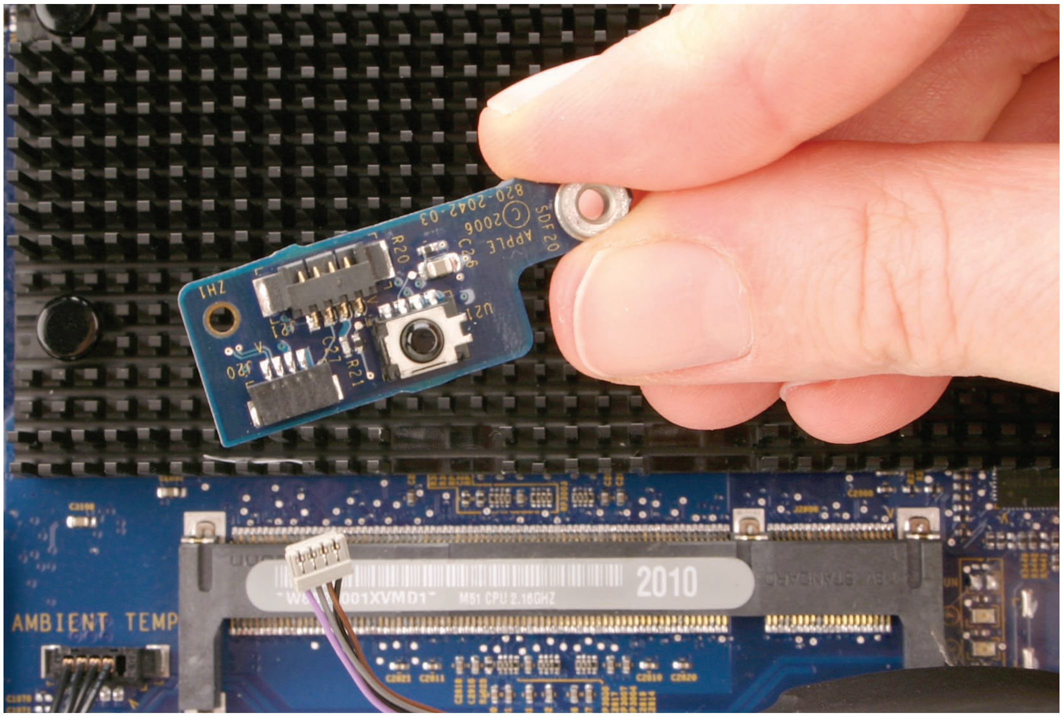




2. Tilt out the IR board, and disconnect the IR/ALS cable from the IR board. Lift the IR board from its IR shield.

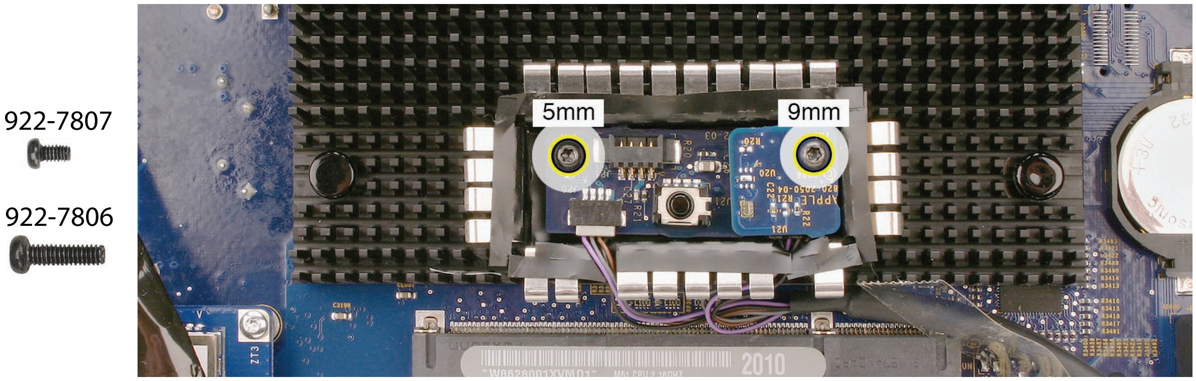


3. Remove the IR board from the IR shield and logic board.


820-2042-03
APPLE
AMBIENT TEMP
2010

Replacing the IR Board

1. Connect the IR cable to the IR board and ALS board.
2. Install the IR shield, IR board, ALS board, and screws.


922-7807
922-7806
5mm
9mm

3. While holding the memory eject levers closed, replace the front bezel.
4. Replace the access door.

IR/ALS Cable

Tools

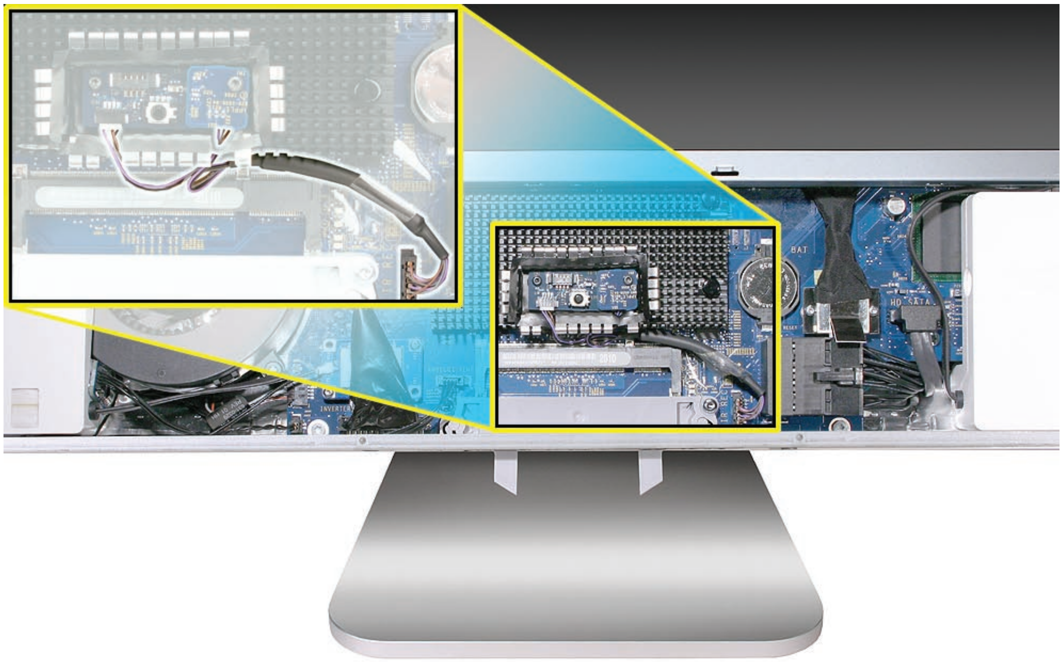
The only tool required for this procedure is a black stick (or other nonconductive nylon or plastic flat-blade tool).

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel

Part Location

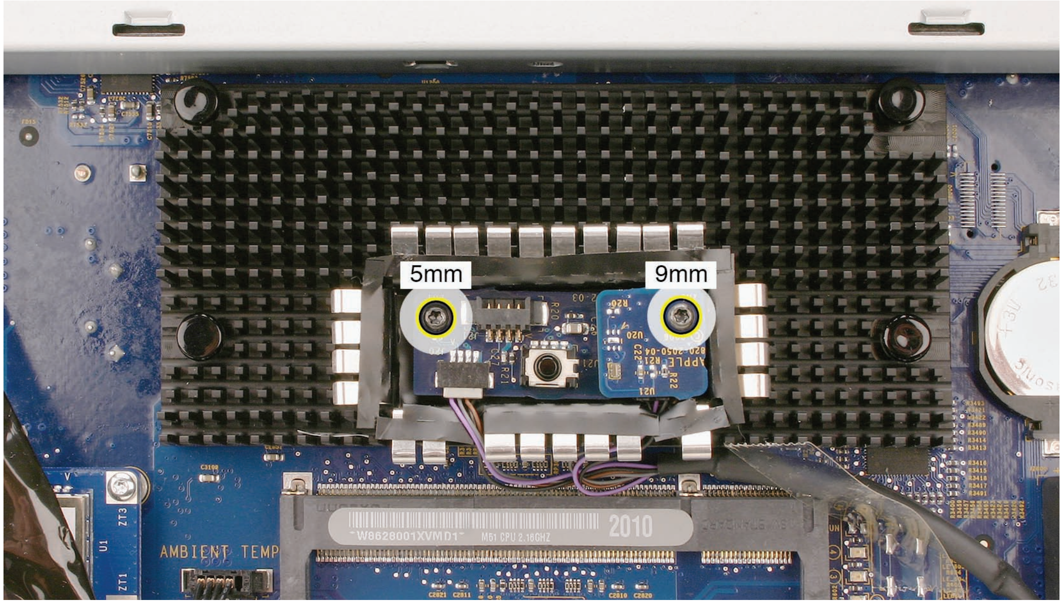


Removing the IR/ALS Cable

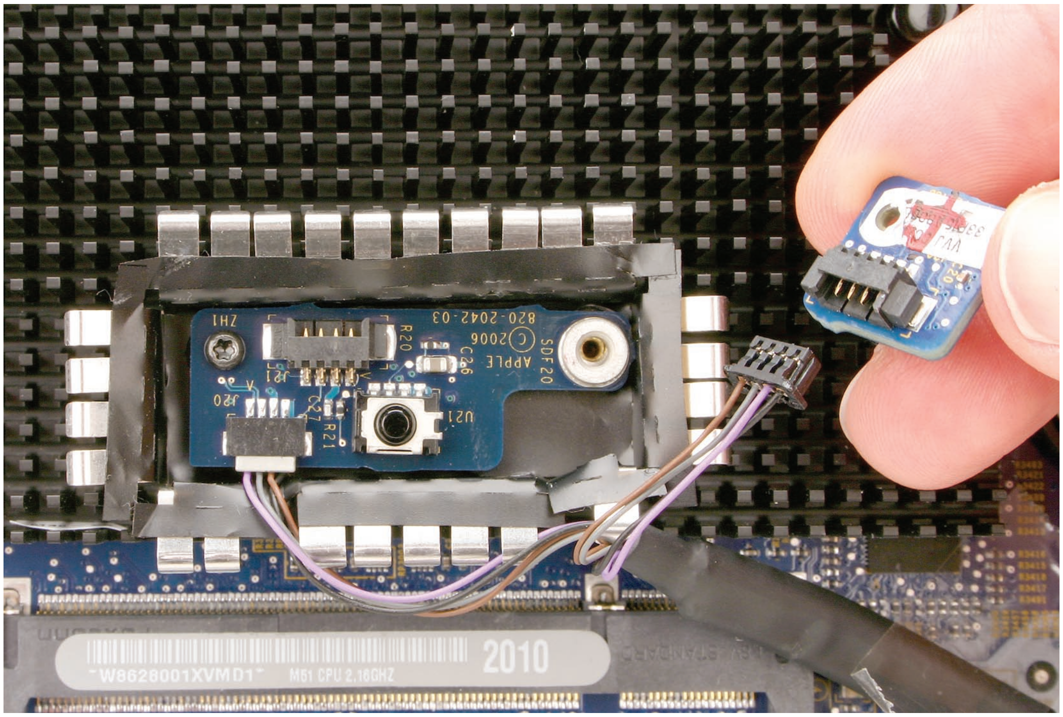
1. Remove the two screws from the IR and ALS boards:
   - 5-mm long T6 screw at left corner
   - 9-mm long T6 screw at right corner

922-7807

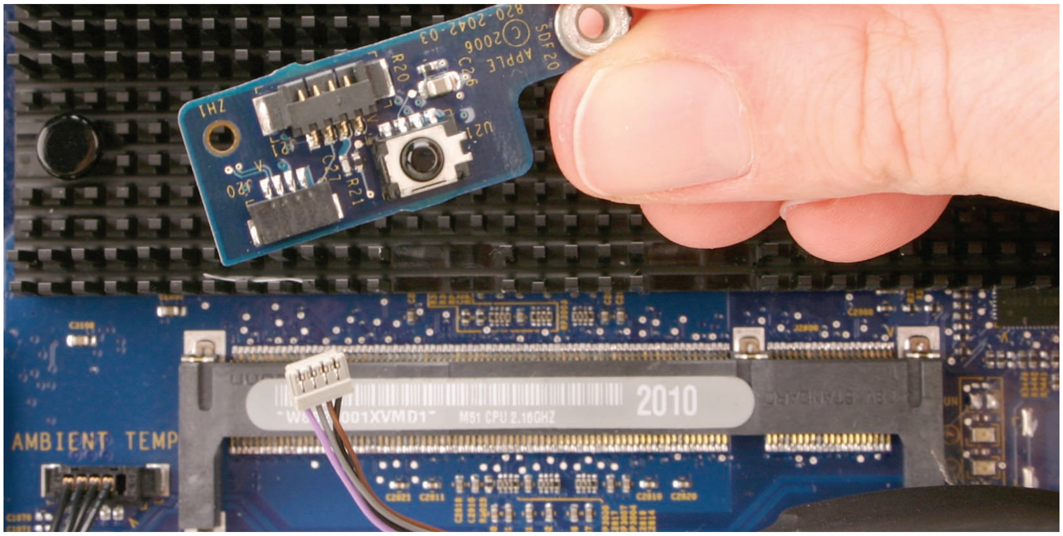
922-7806



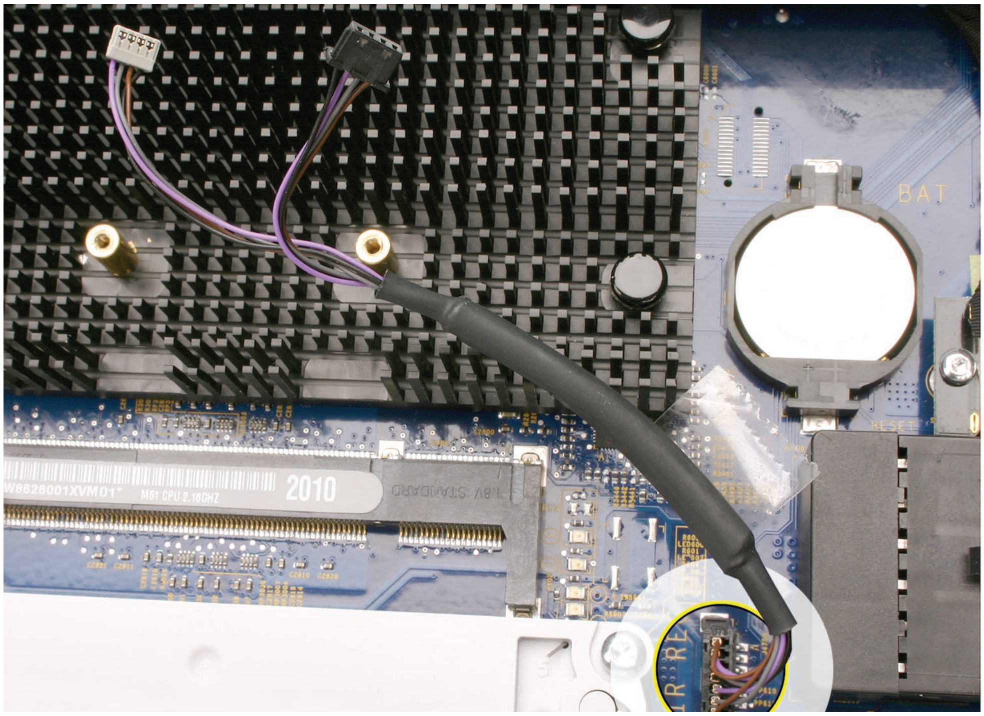
2. Lift out the ALS board and disconnect the cable from the ALS board.



3. Lift out the IR board and disconnect the cable from the IR board.

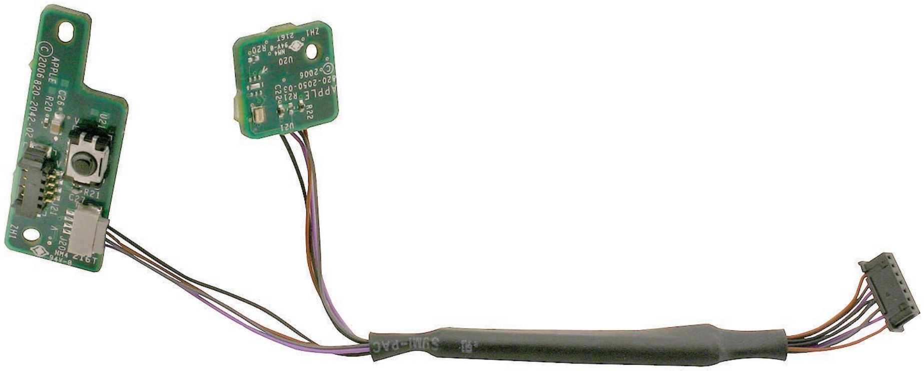


4. Peel up the strip of tape that secures the cable to the logic board, and disconnect the other end of the cable from the logic board.



Replacing the IR/ALS Cable

1. Connect the cable to the IR board and ALS board before installing them into the IR/ALS shield. Position the shield over the logic board and install the two screws.



2. Connect the other end of the cable to the logic board.
3. Holding the memory eject levers closed, replace the front bezel.
4. Replace the access door.

IR/ALS Shield

Tools

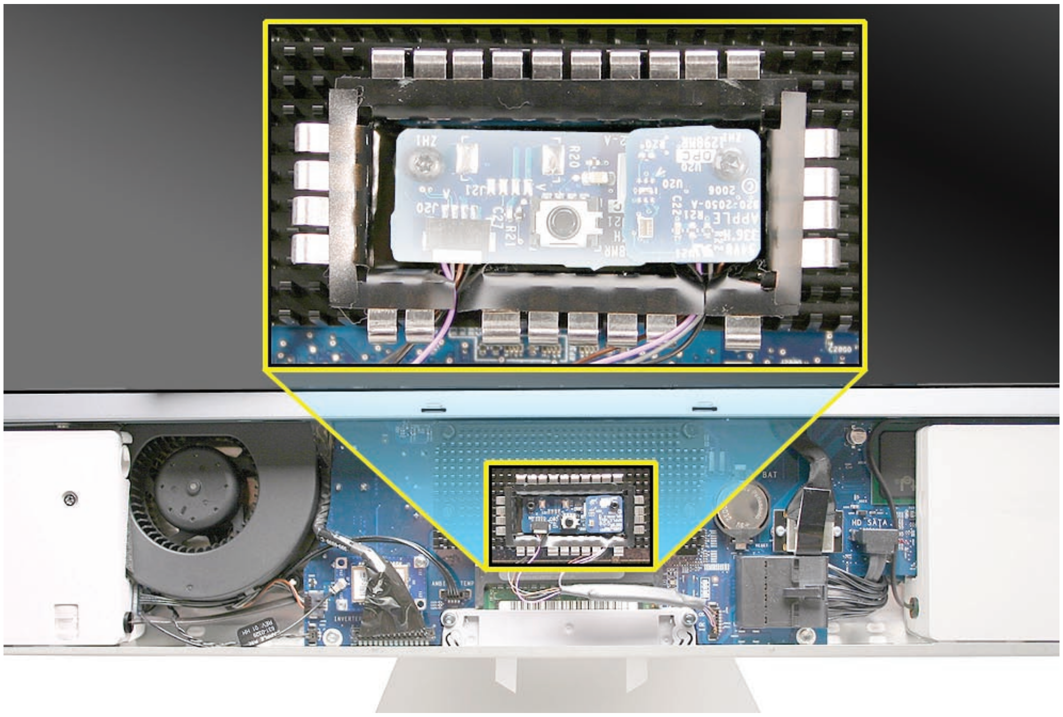
The only tool required for this procedure is a black stick (or other nonconductive nylon or plastic flat-blade tool).

Preliminary Steps

Before you begin, remove the following:

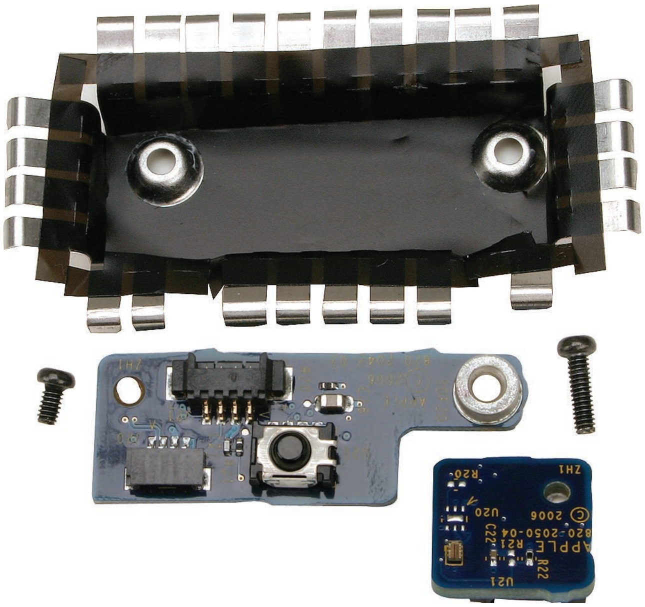
- Access door
- Front bezel
- ALS board
- IR board

Part Location



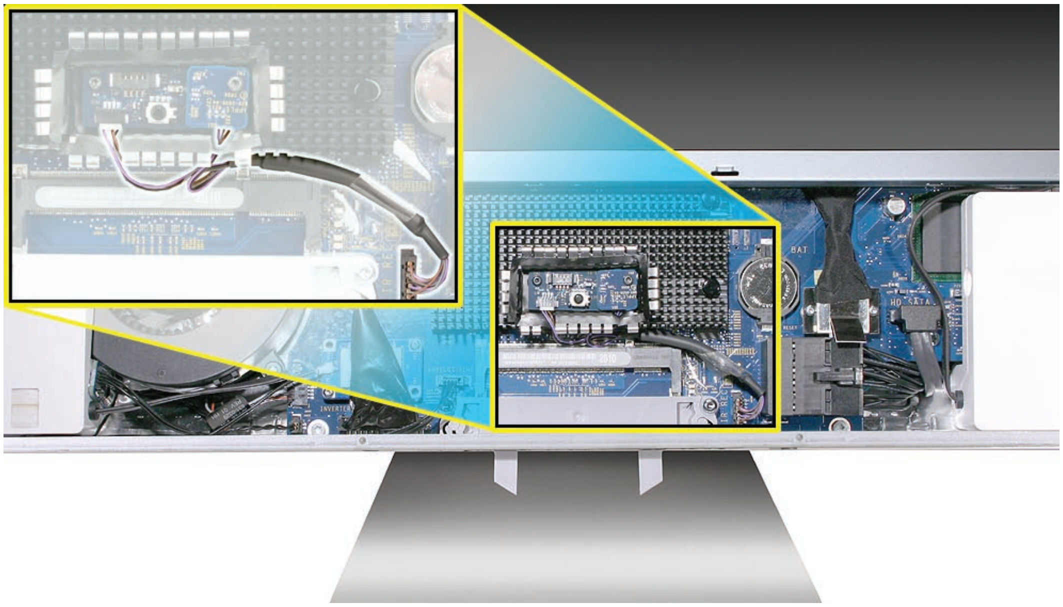
Removing the IR/ALS Shield

With the ALS board and IR board removed, the shield is loose.

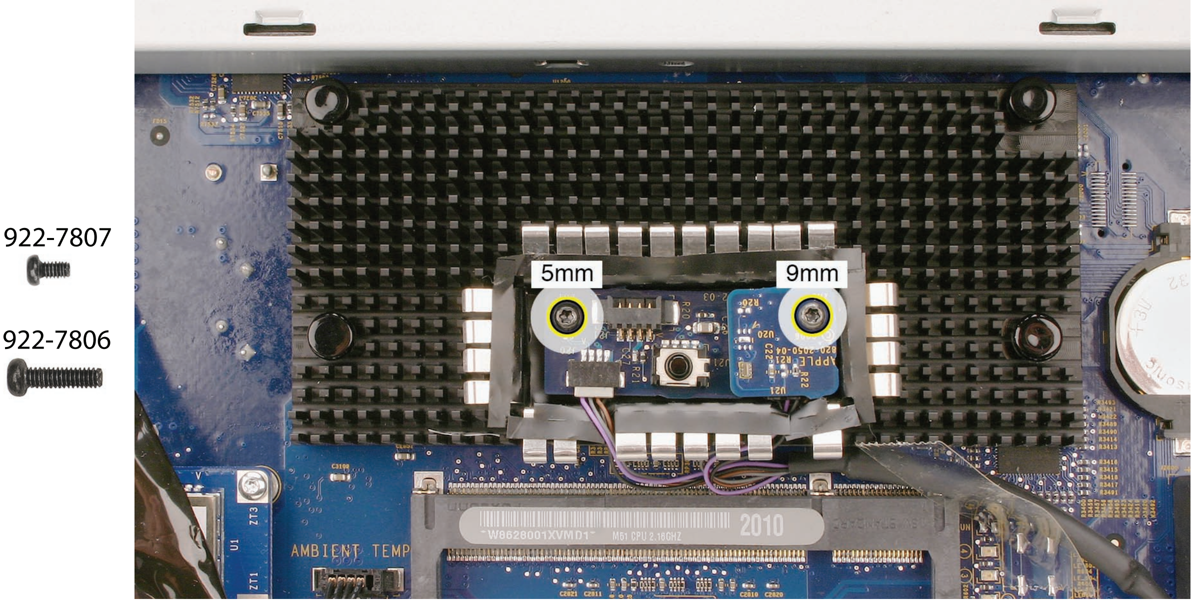


Replacing the IR/ALS Shield

1. Position the IR board and ALS board (with IR/ALS cable connected) into the IR/ALS shield.



2. Position the shield over the logic board and install the two screws.



3. Holding the memory eject levers closed, replace the front bezel.

4. Replace the access door.

Ambient Temperature Sensor Cable

Tools

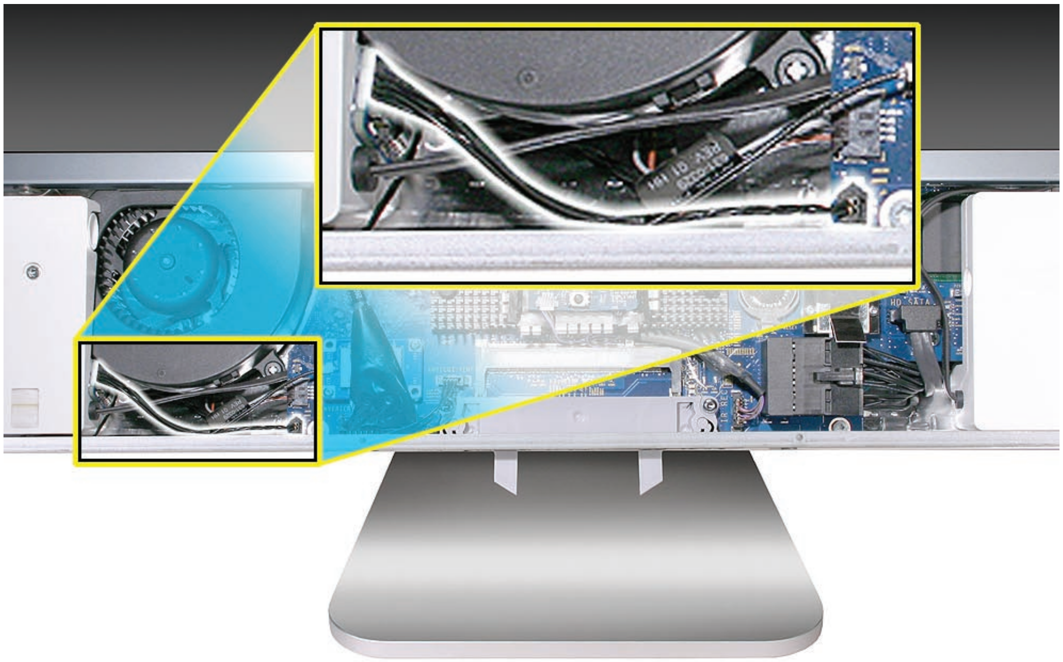
The only tool required for this procedure is a black stick (or other nonconductive plastic or nylon tool).

Preliminary Steps

Before you begin, remove the following:

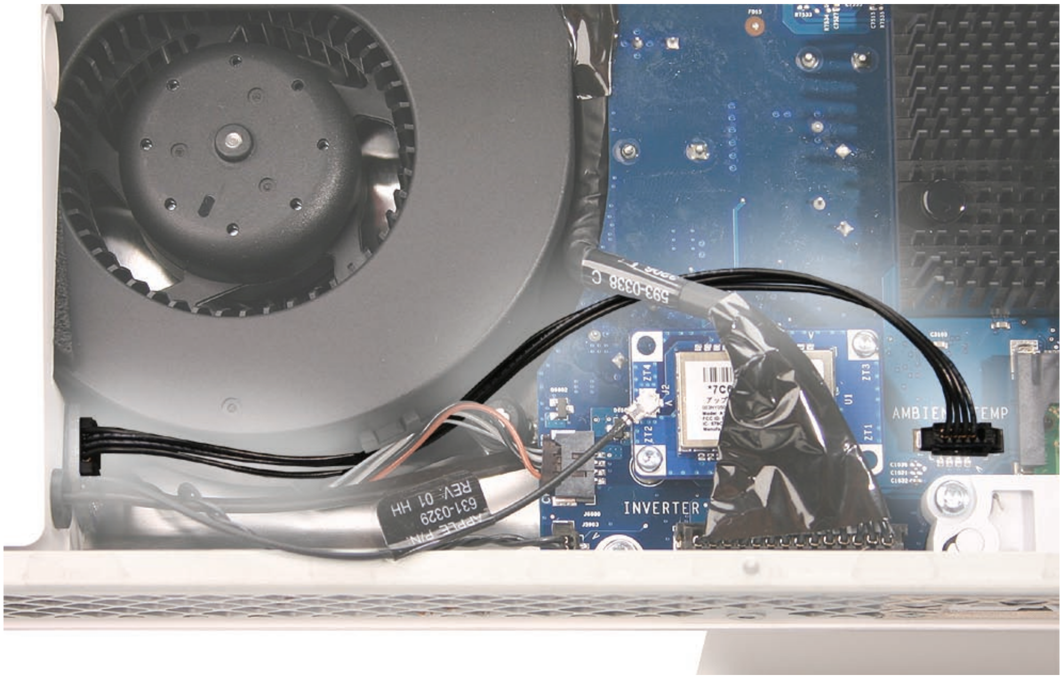
- Access door
- Front bezel

Part Location



Removing the Ambient Temperature Sensor Cable

1. Note the cable routing from the left speaker to the logic board.
2. Use a black stick to disconnect the cable from the sensor board on the speaker and the connector on the logic board.



593-0338 C
AMBIENT TEMP
INVERTER
APPLE P/N
631-0329
REV: 01 HH

3. Remove the cable.

Replacing the Ambient Temperature Sensor Cable

1. Connect the cable to the sensor board on the speaker and the logic board.
2. While holding the memory eject levers closed, replace the front bezel.
3. Replace the access door.

Ambient Temperature Sensor

Tools

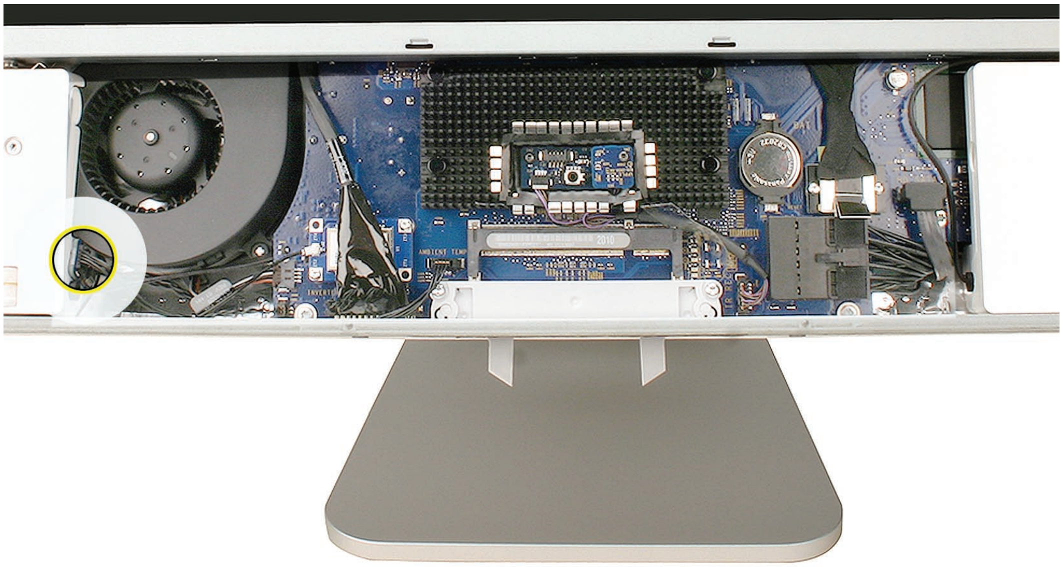
- Black stick (or other nonconductive nylon or plastic flat-blade tool)
- Permanent ink felt-tip pen

Preliminary Steps

Before you begin, remove the following:

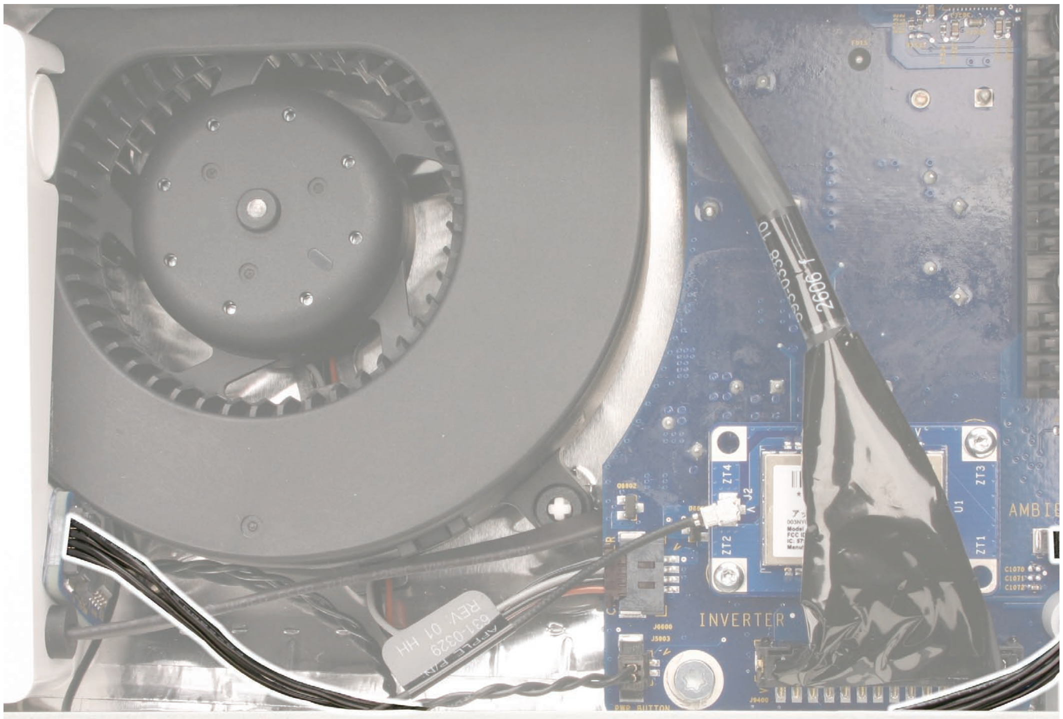
- [Access door]
- [Front bezel]

Part Location

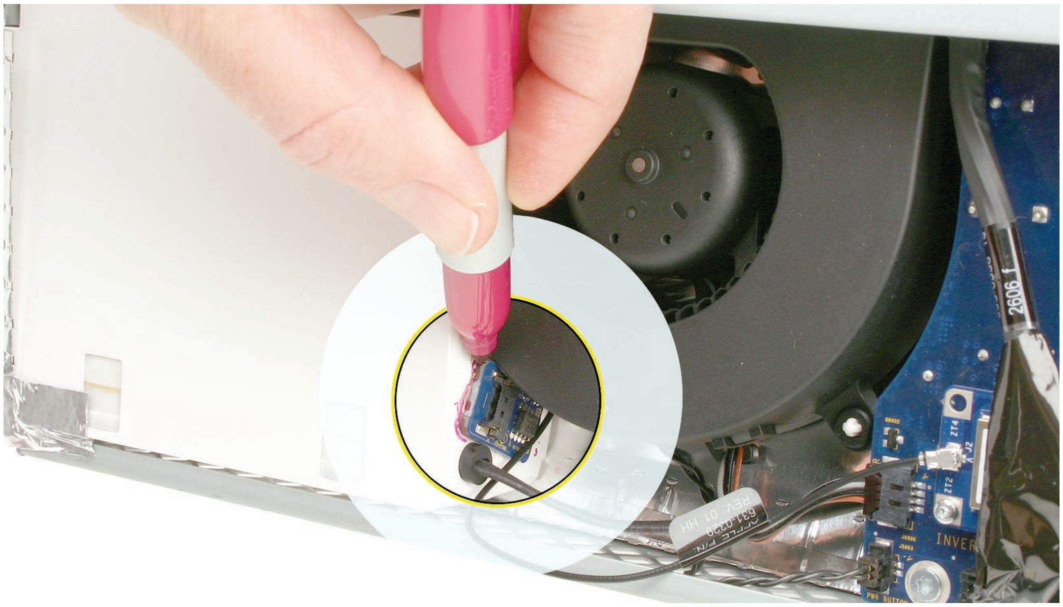


Removing the Ambient Temperature Sensor

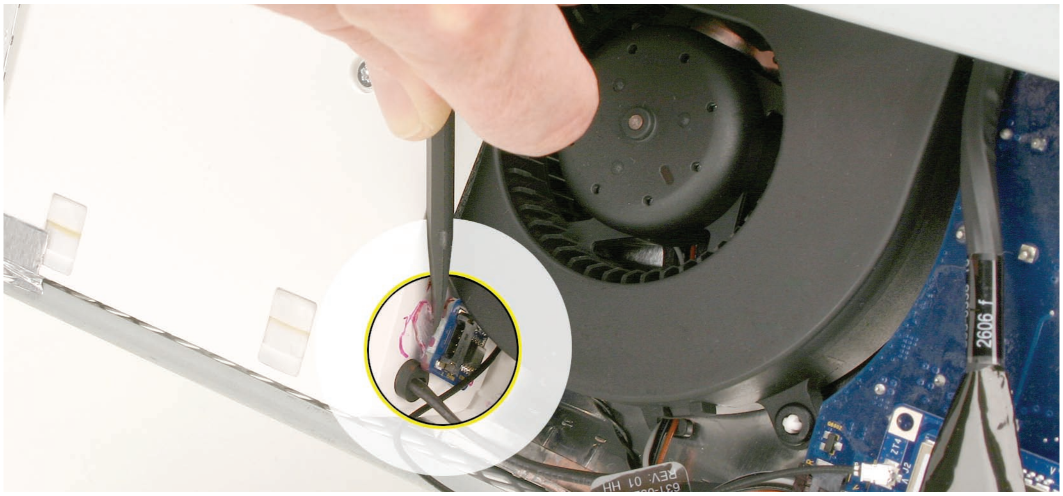
1. Disconnect the ambient temperature sensor cable from the sensor board.



2. Check the position of the ambient temperature sensor on the left speaker. Use a permanent ink marker to draw an outline of the sensor.

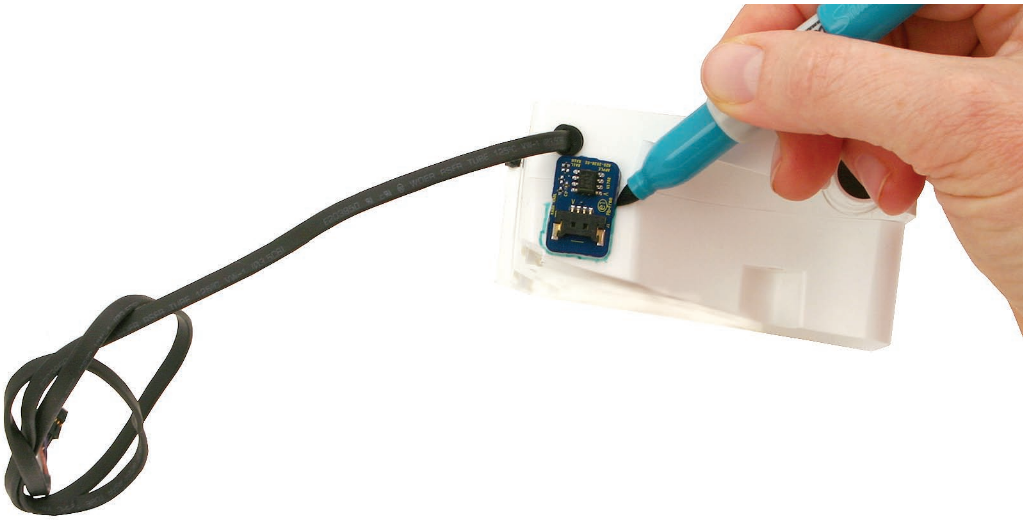


3. Use a black stick to peel up the sensor from the adhesive on the side of the speaker.

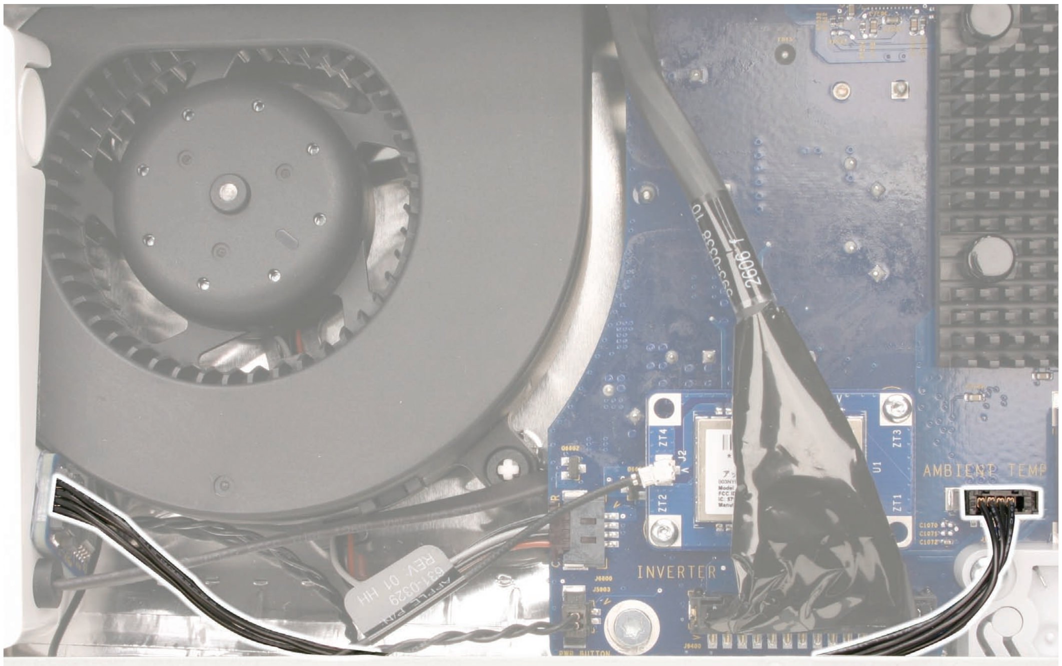


Replacing the Ambient Temperature Sensor

1. Replacement Note: If you are replacing the left speaker, use a permanent ink pen to mark the sensor area as a reference before installing the sensor.
   Note: A replacement left speaker includes the attached cable and gasket, but not the sensor.



2. Install the sticky side of the sensor on the speaker within the outlined marking.
3. Connect the temperature sensor cable.



4. Replace the display panel.
5. Replace the front bezel.
6. Replace the access door.

Bluetooth Card

Tools

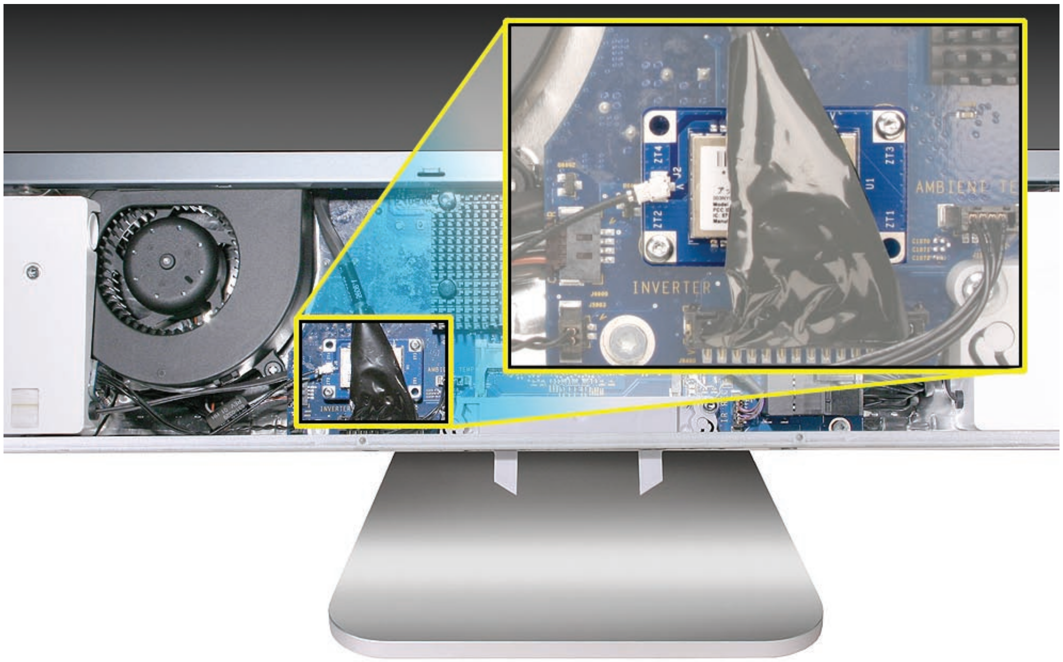
- Torx T6 screwdriver

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel

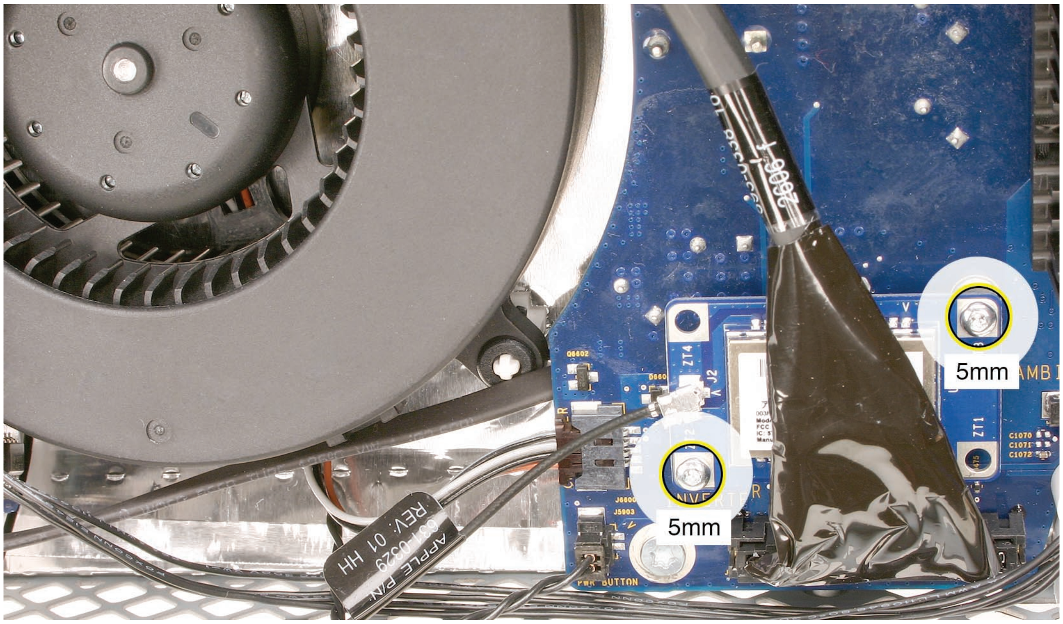
Part Location


AMBIENT TE
INVERTER

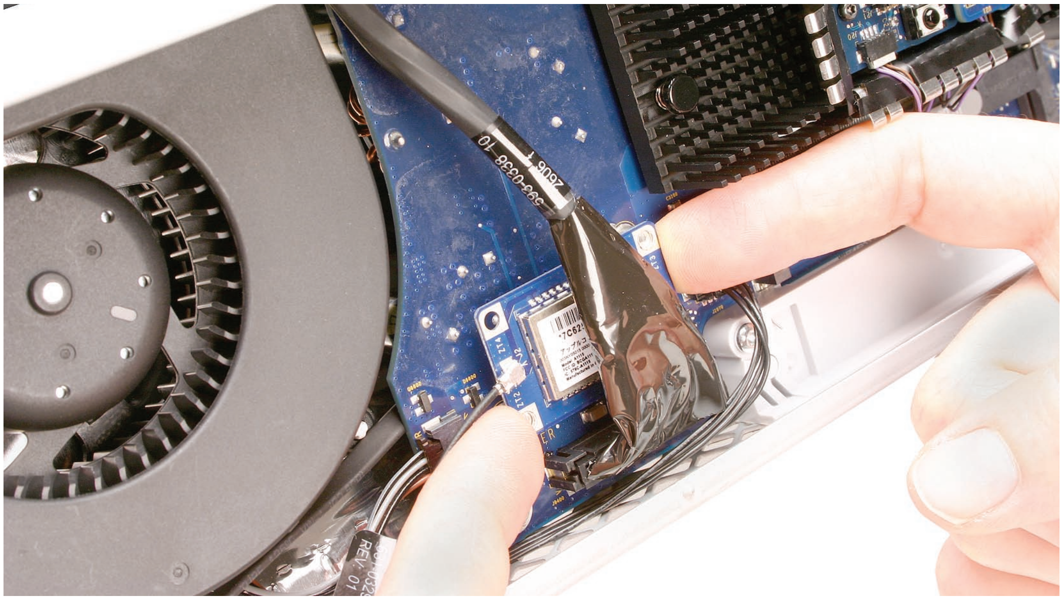
Removing the Bluetooth Card

1. Using a T6 torx screwdriver, remove the two 5-mm long screws from the lower left and upper right opposite corners of the Bluetooth card.
   Note: There is no need to disconnect the inverter cable to remove the Bluetooth card.

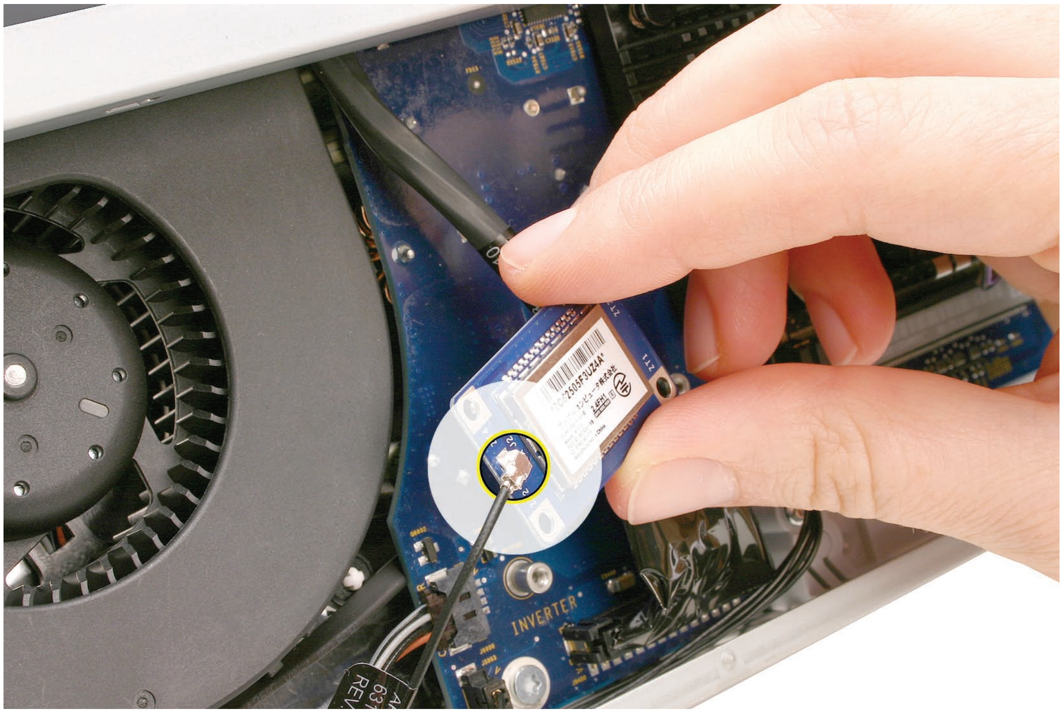
922-7010



2. Lift the card from underneath the inverter cable and off of the logic board.



3. Disconnect the Bluetooth antenna from the left side of the card.



Replacing the Bluetooth Card

1. Connect the Bluetooth antenna to the Bluetooth card.
2. Press the Bluetooth card onto the logic board connector.
3. Replace the two screws.
4. Replace the front bezel.
5. Replace the access door.

LCD Display Panel

Tools

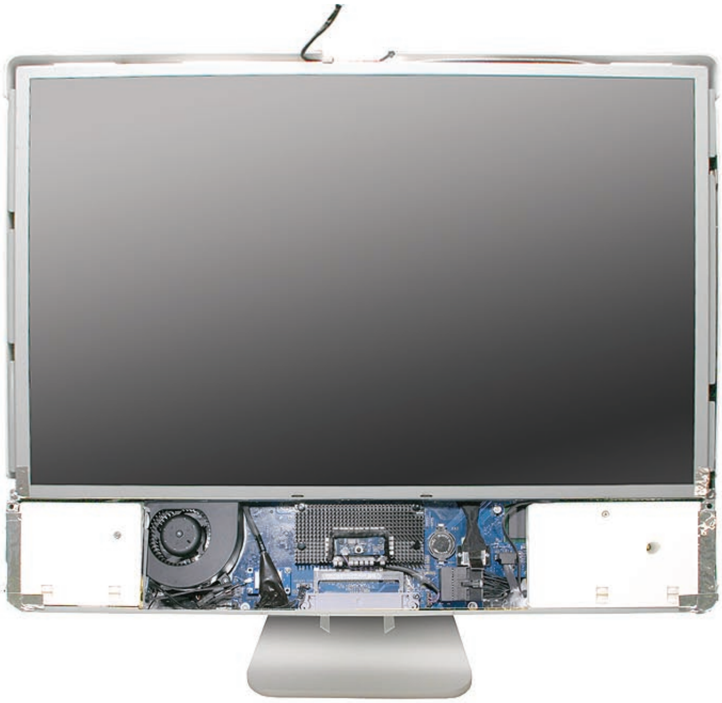
- Torx T6 screwdriver
- Torx T8 screwdriver
- Torx T10 screwdriver
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, remove the following:

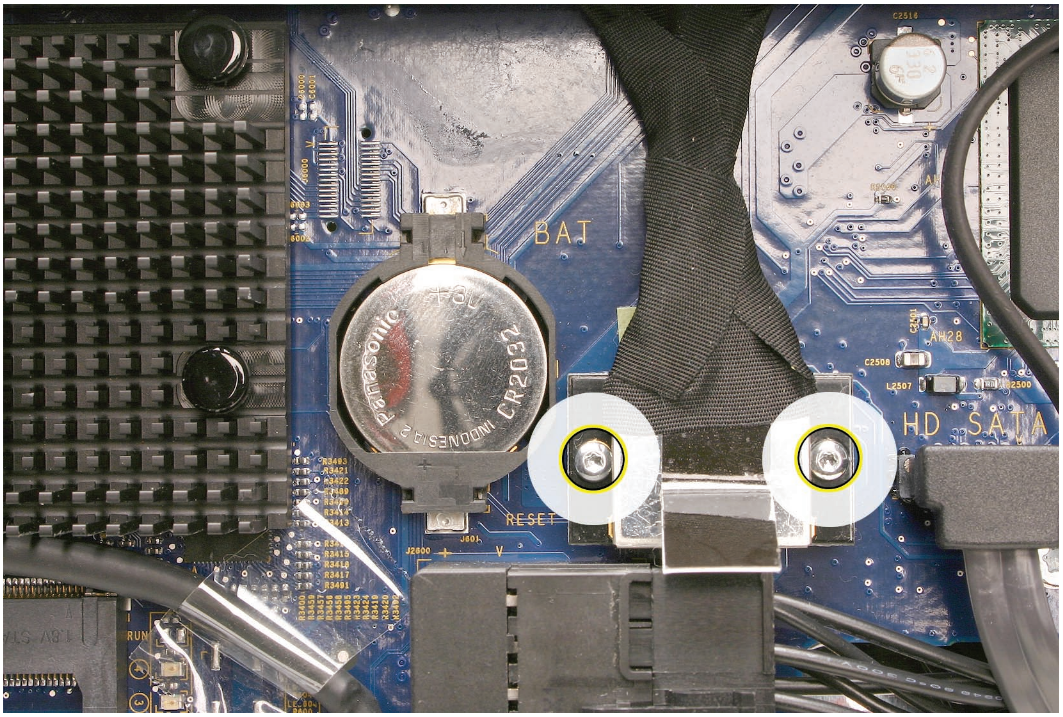
- Access door
- Front bezel

Part Location

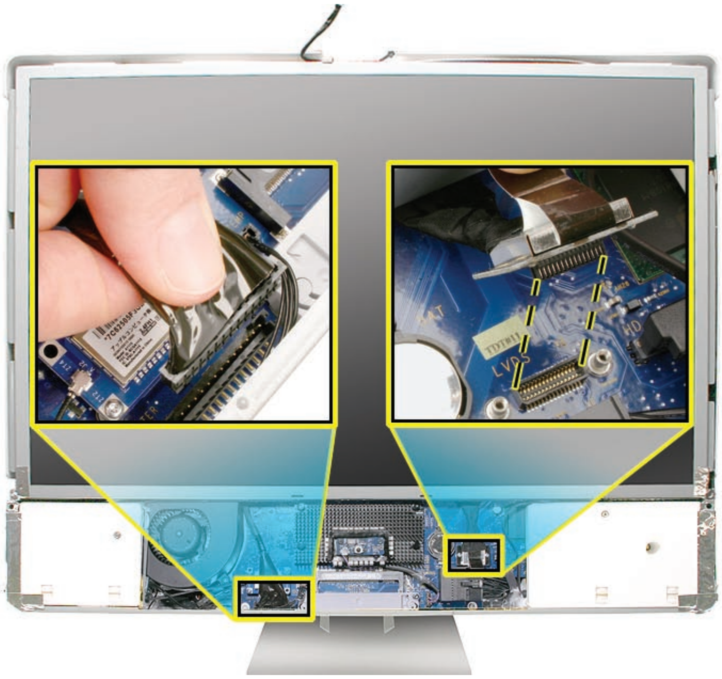


Removing the Display Panel

1. Place the computer with the display face up.
2. Remove the two T6 screws from the LVDS connector.

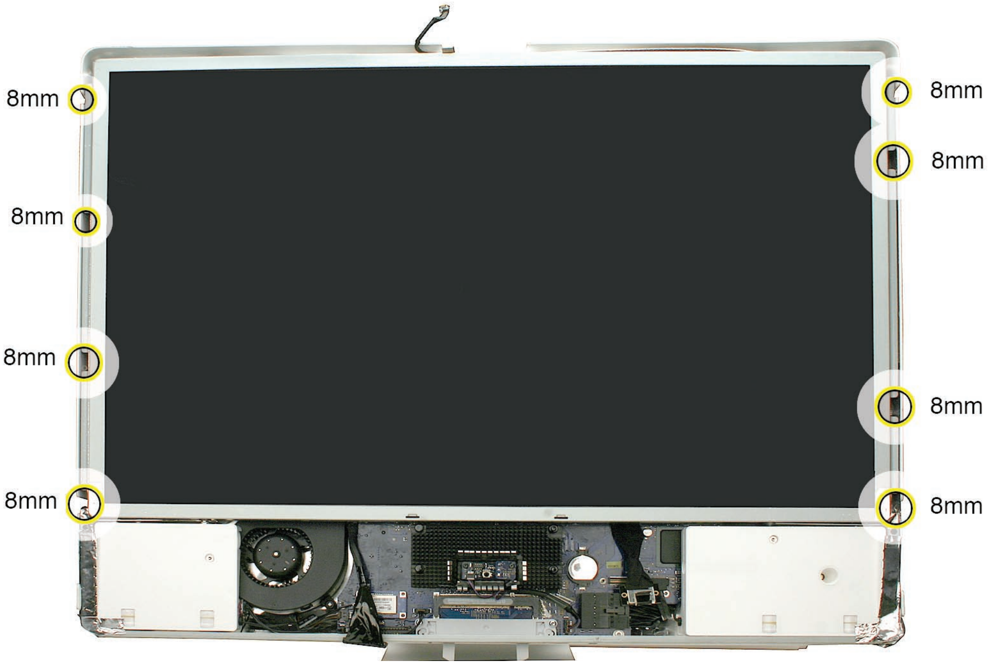


3. Disconnect the LVDS cable and inverter cable from the logic board.

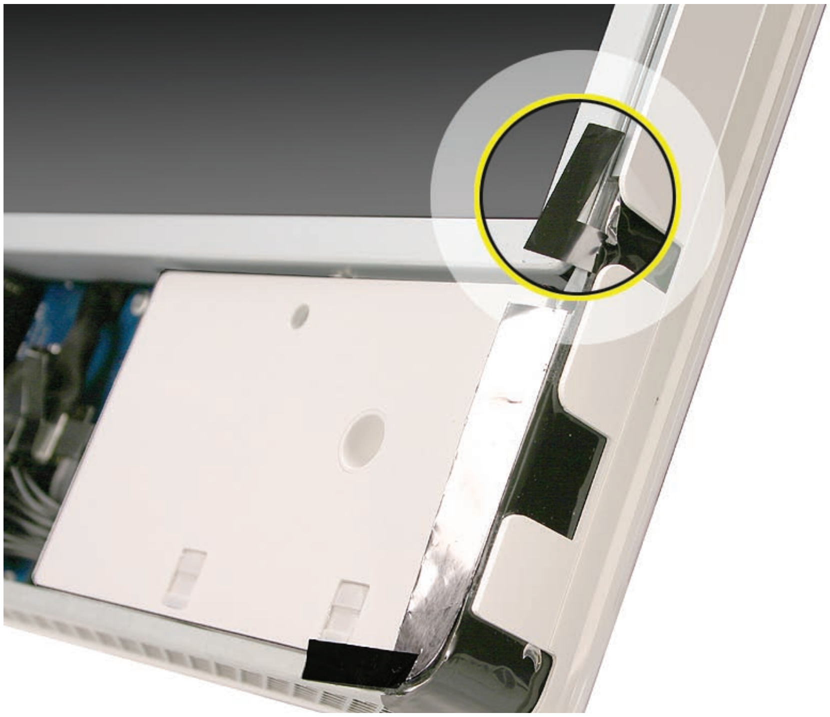


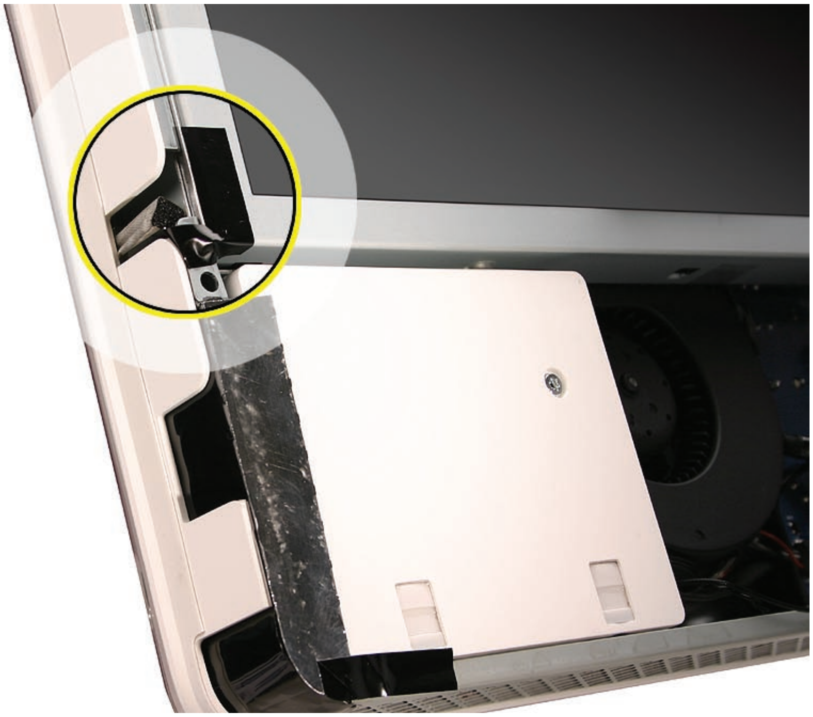
4. Remove the eight 8-mm long T8 screws from the sides of the panel frame.

922-7815

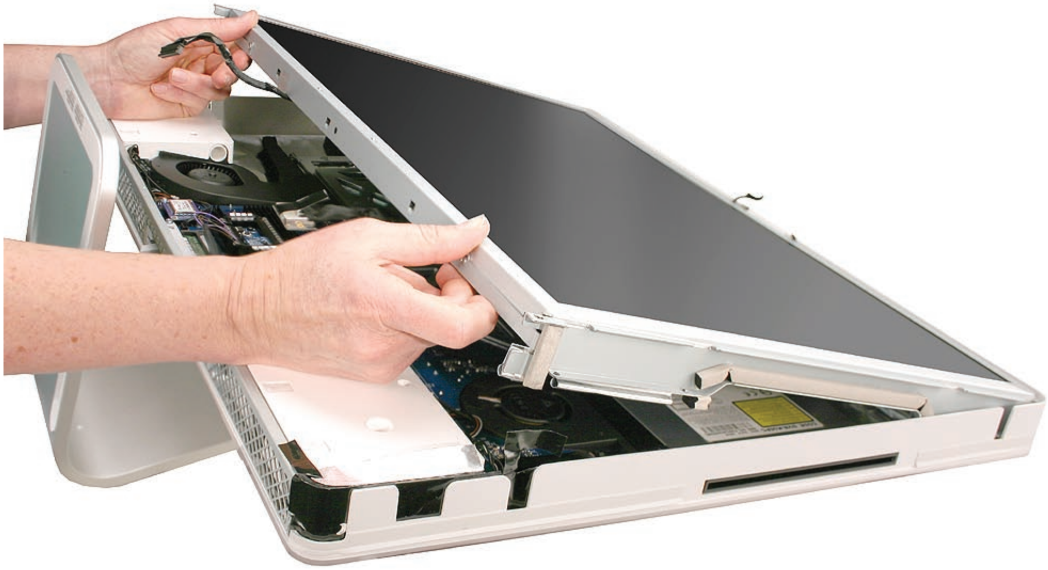

8mm
8mm
8mm
8mm
8mm
8mm
8mm
8mm

5. Peel up the strip of tape at the lower corners of the LCD panel.

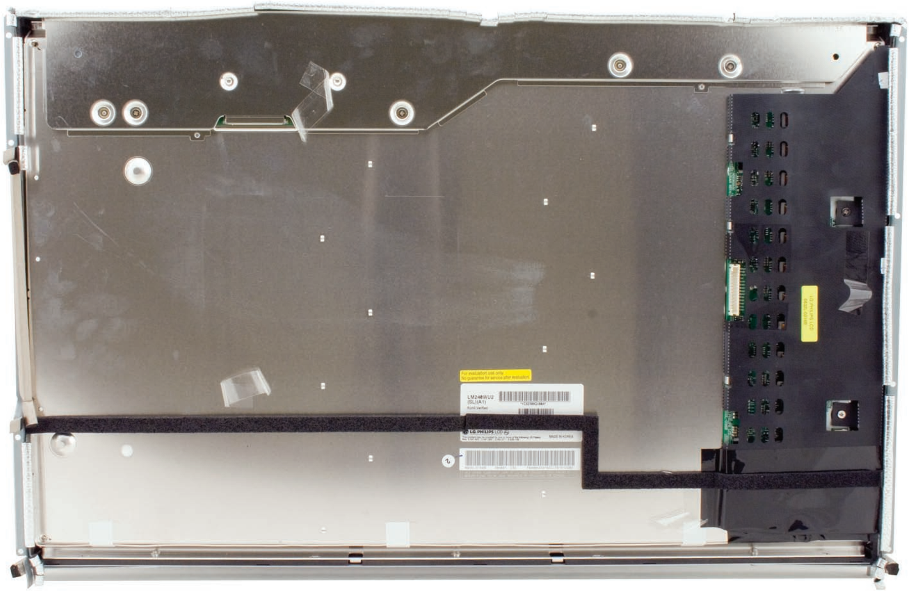




6. Grasp the LCD panel at the bottom edge, and tilt up the panel to remove it from the computer assembly.

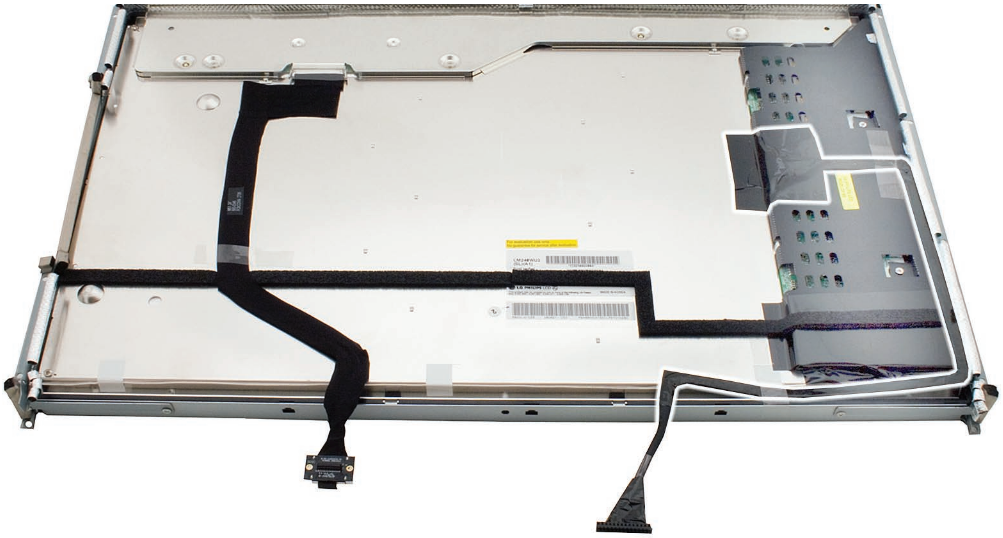


7. **Note**: If replacing the display panel, disconnect the LVDS cable from the panel and the inverter cable from the inverter board before returning the module to Apple. Transfer the two cables to the replacement panel. A replacement panel includes the inverter board, both display panel mounting brackets, the EMI strip surrounding the panel, and the foam strip and gaskets, as shown below.

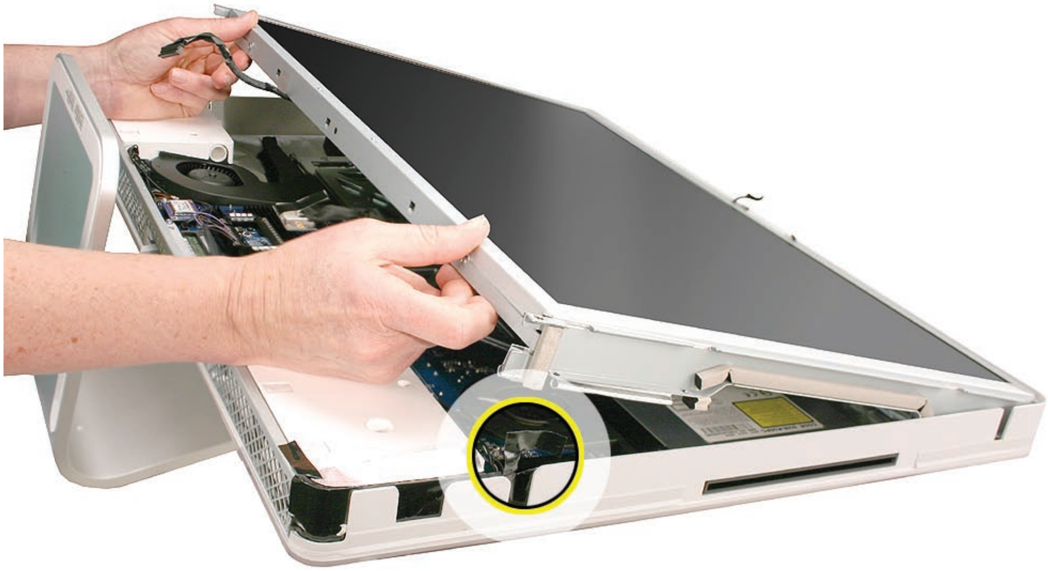


Replacing the Display Panel

1. Connect the LVDS cable to the rear of the display panel.
2. Connect the inverter cable to the inverter board on the rear of the display panel.

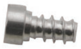


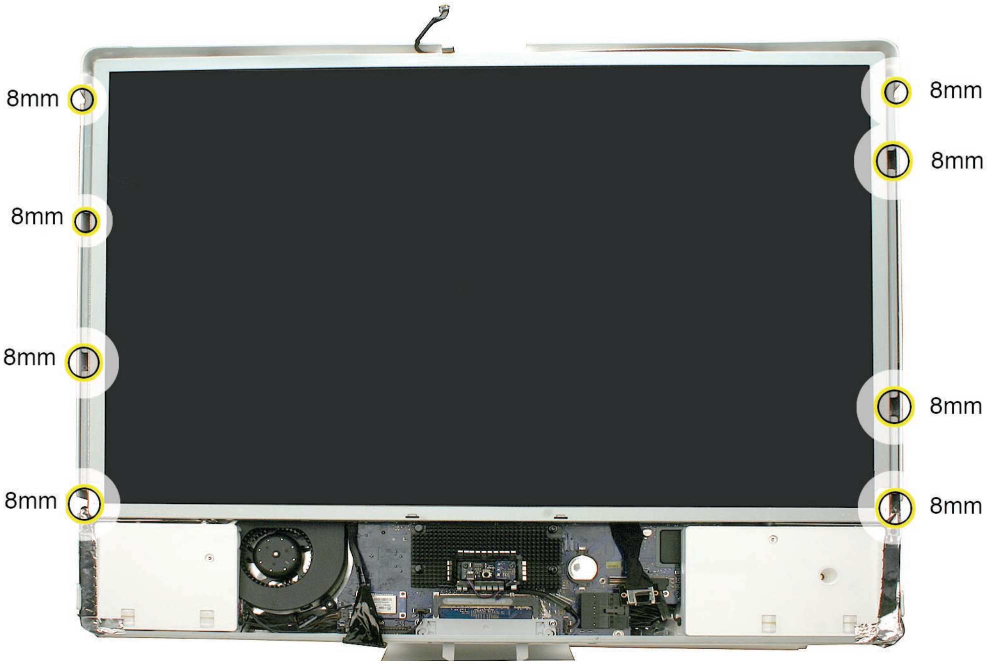
3. Make sure the tape at each lower corner is back far enough so it cannot be pinched as you lower the LCD panel into the computer assembly.



4. Install the eight mounting screws.

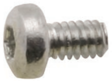
922-7815

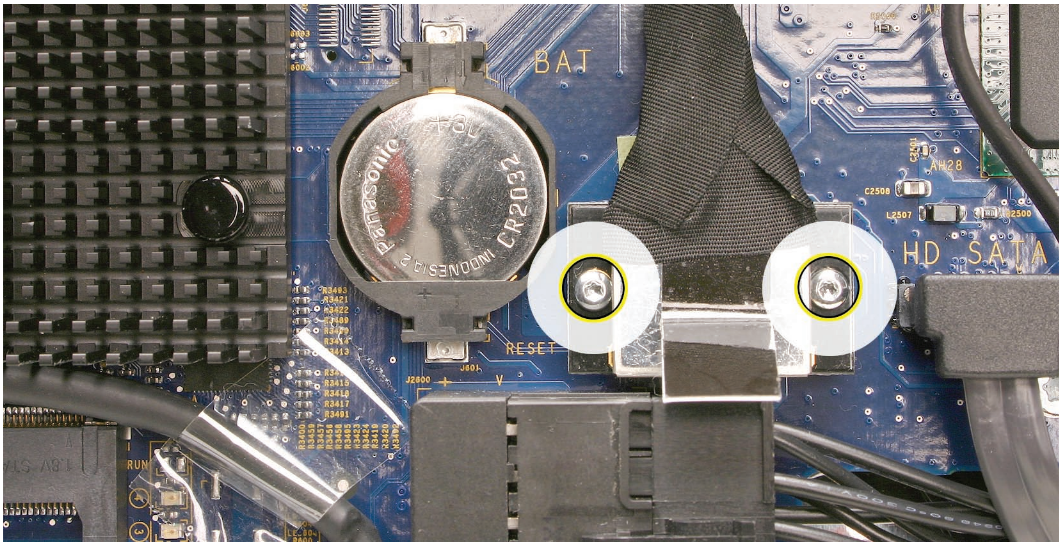



8mm
8mm
8mm
8mm
8mm
8mm
8mm
8mm

5. Connect the LVDS cable connector to the logic board and secure it with two screws.

922-7010




BAT
Panasonic
CR2032
RESET
HD SATA

6. Connect the inverter cable to the logic board.

7. Replace the front bezel.

8. Replace the access door.

LVDS Cable

Tools

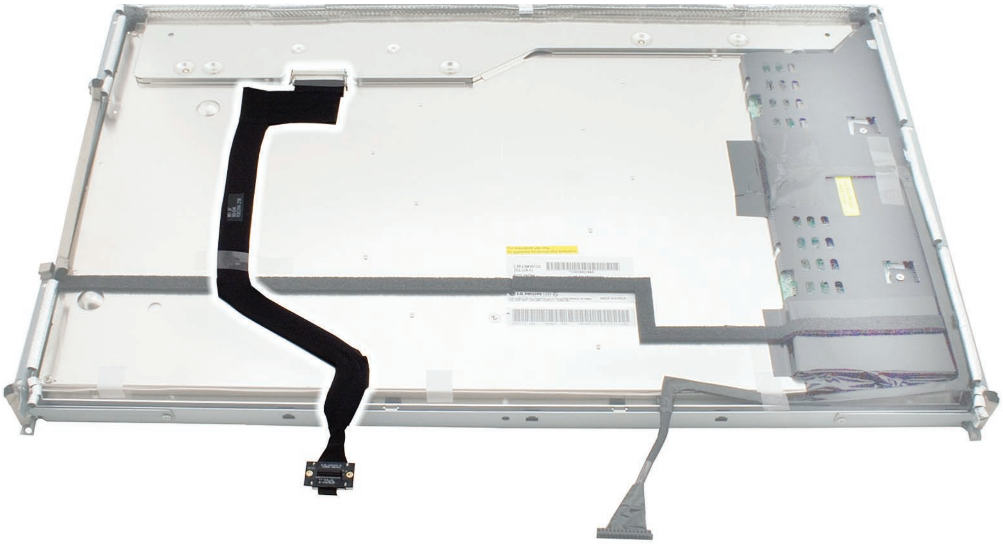
- Torx T6 screwdriver
- Black stick (or other nonconductive nylon or plastic flat-blade tool)
- Soft, clean towel or cloth

Preliminary Steps

Before you begin, remove the following:

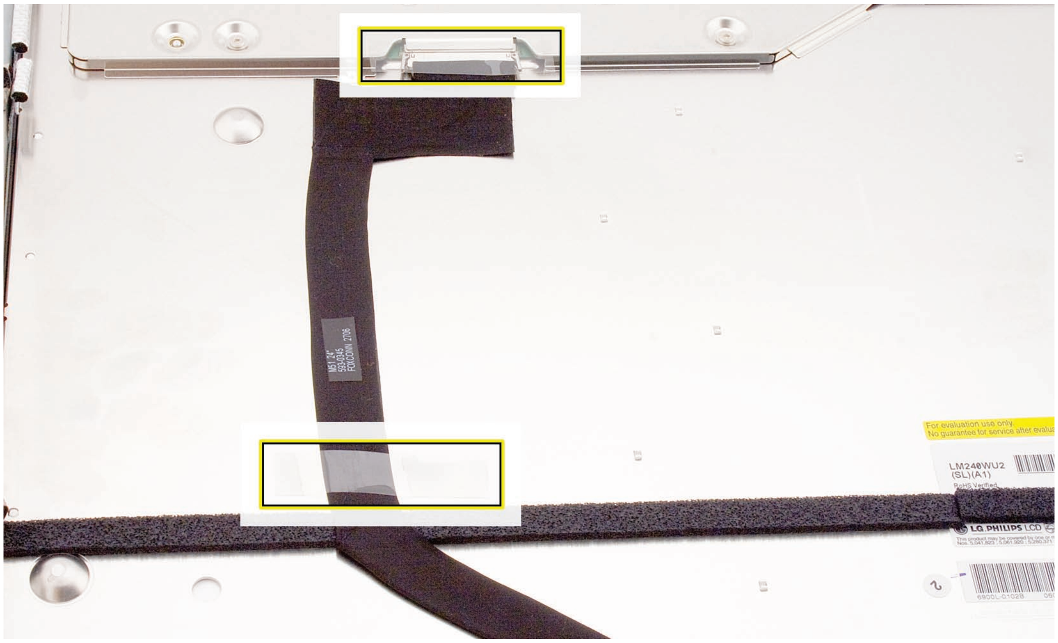
- Access door
- Front bezel
- LCD display panel

Part Location

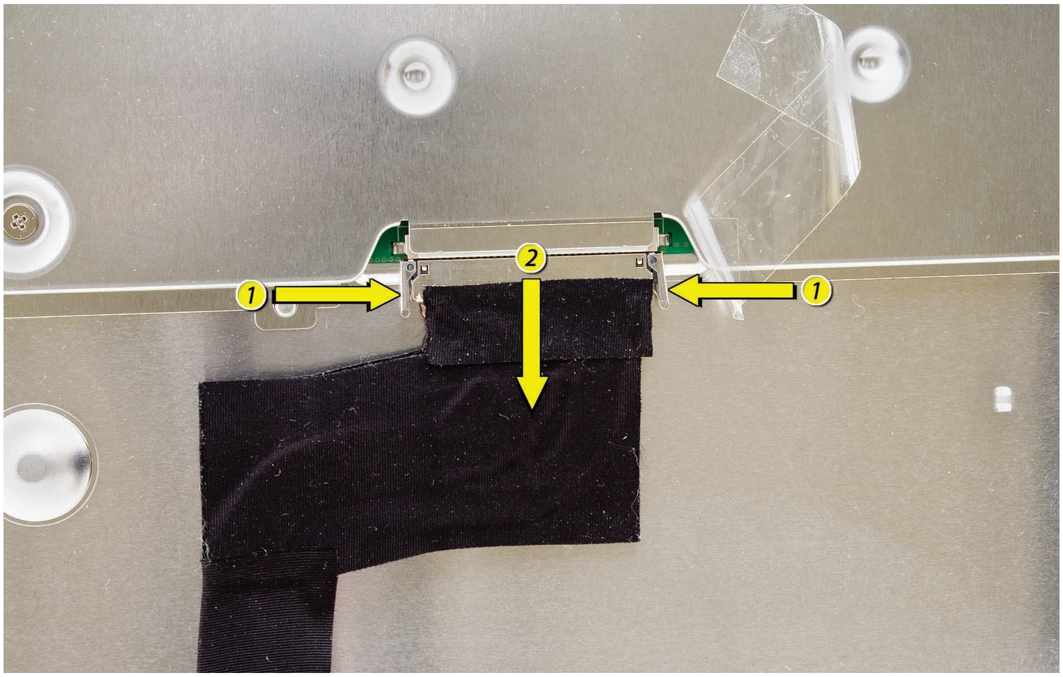


Removing the LVDS Cable

1. With the computer face down on a soft cloth, peel up the strips of tape from the LVDS cable on the back of the display panel.



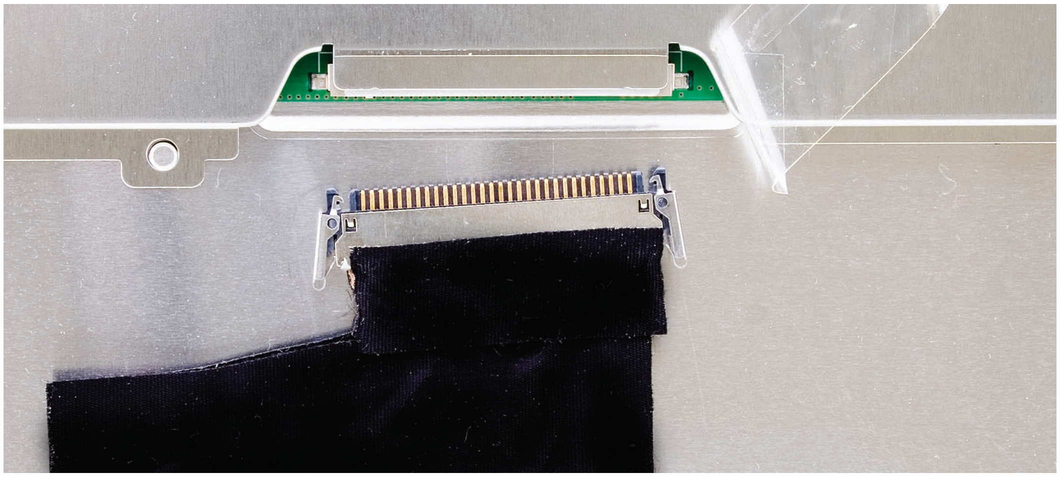
2. Press in on the cable clips and then pull straight down on the cable to disconnect the LVDS connector.



3. Lift the LVDS cable from the display panel.

Replacing the LVDS Cable

1. Connect the LVDS cable to the rear of the display panel.



2. Replace the tape over the LVDS cable connector.
3. With both the LVDS cable and the inverter cable connected to the back of the display panel, install the display panel with eight mounting screws.
4. Connect the LVDS cable and the inverter cable to the logic board.
5. Replace the front bezel.
6. Replace the access door.

Inverter Cable

Tools

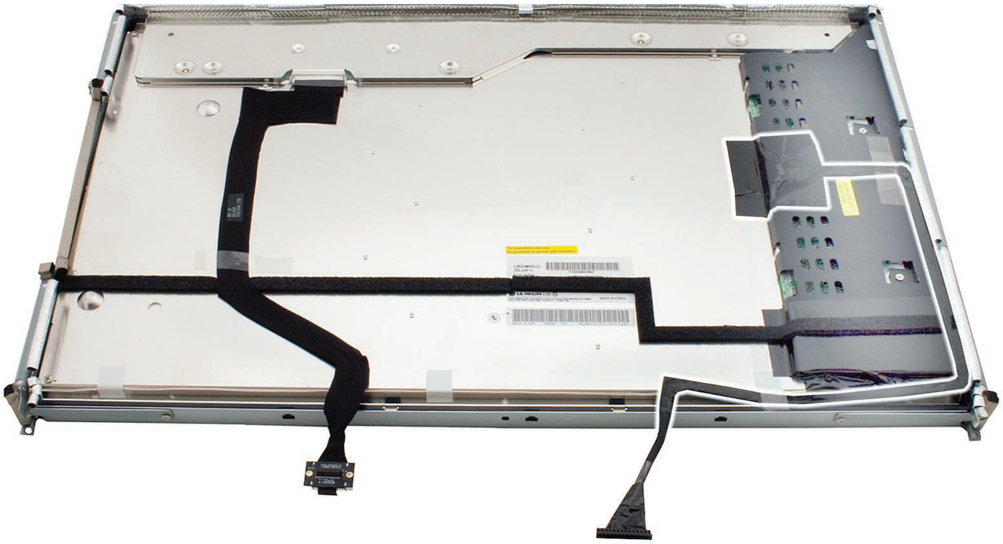
- Torx T6 screwdriver
- Black stick (or other nonconductive nylon or plastic flat-blade tool)
- Soft, clean towel or cloth

Preliminary Steps

Before you begin, remove the following:

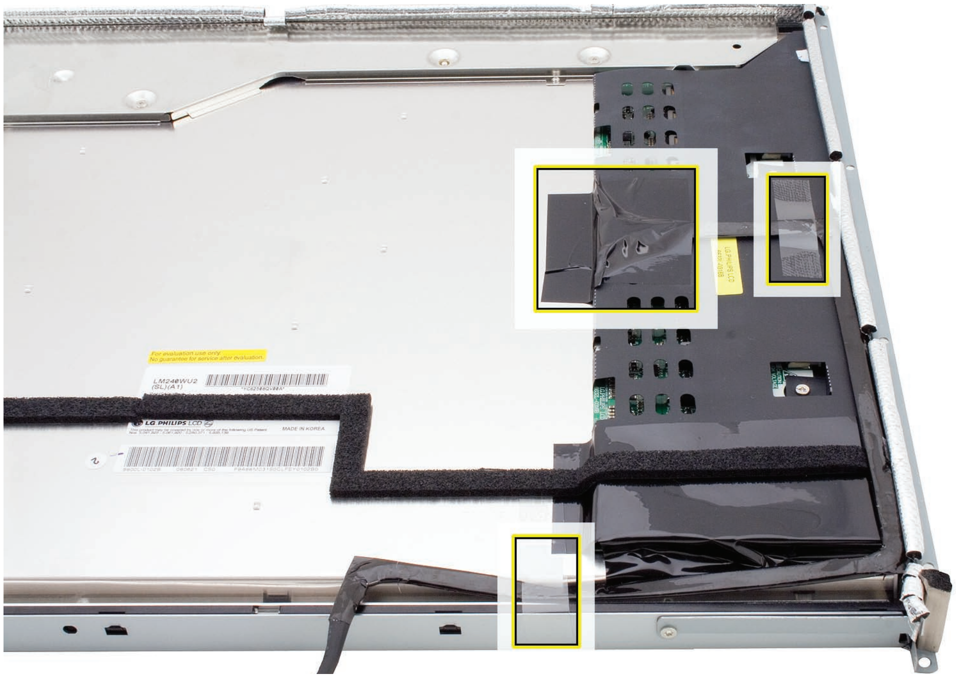
- Access door
- Front bezel
- LCD display panel

Part Location

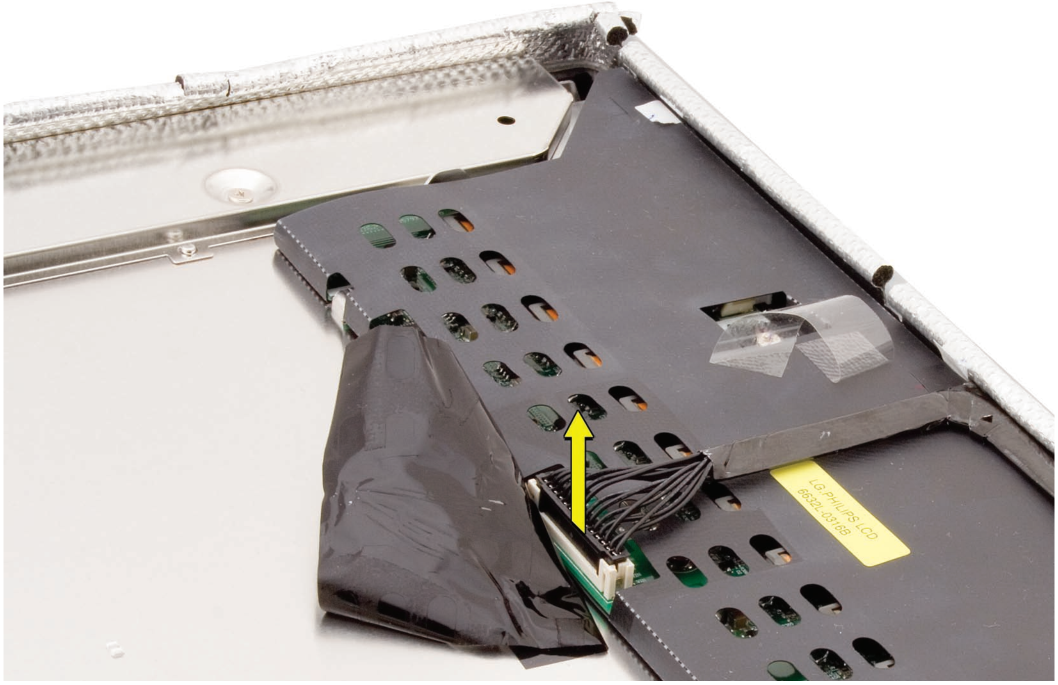


Removing the Inverter Cable

1. With the computer face down on a soft cloth, peel up the strips of tape that cover the inverter cable and connector on the back of the display panel.



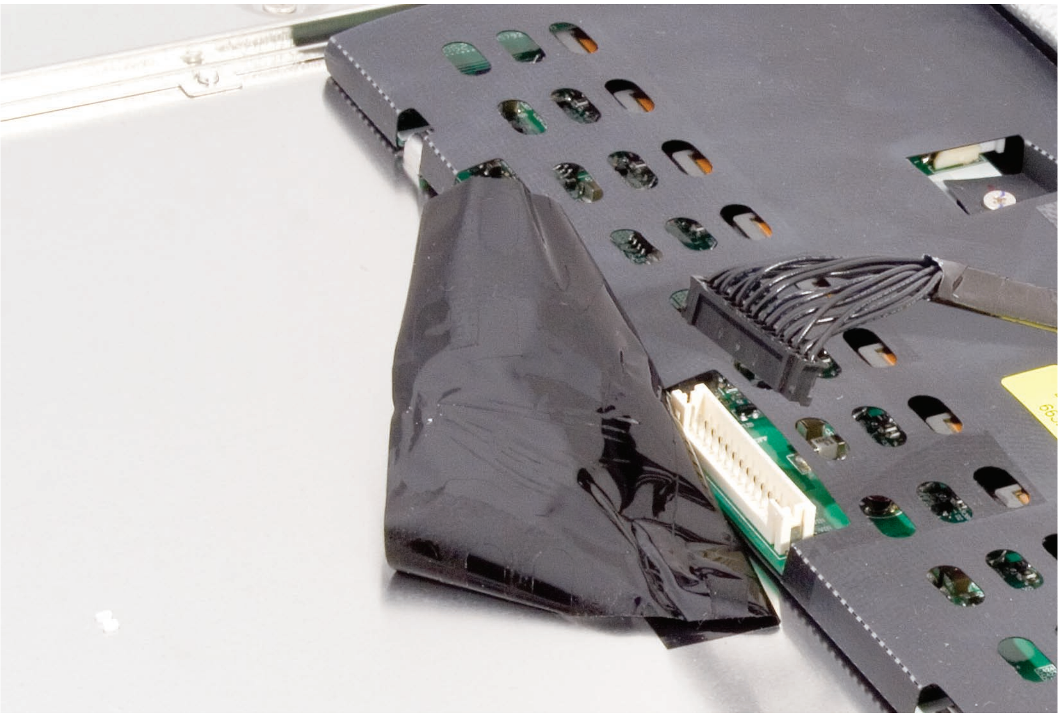
2. Grasp the inverter cable close to the connector and disconnect it from the inverter board.



3. Lift the inverter cable from the display panel.

Replacing the Inverter Cable

1. Connect the inverter cable to the inverter board on the rear of the display panel.



2. With both the LVDS cable and the inverter cable connected to the back of the display panel, install the display panel with eight mounting screws.
3. Connect the LVDS cable and the inverter cable to the logic board.
4. Replace the front bezel.
5. Replace the access door.

Speaker, Right

Tools

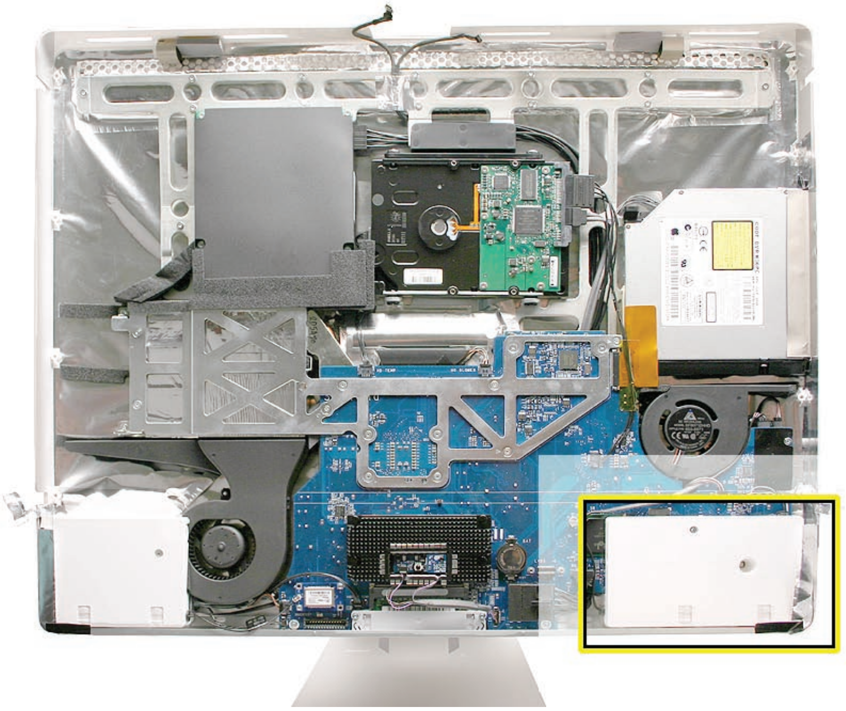
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

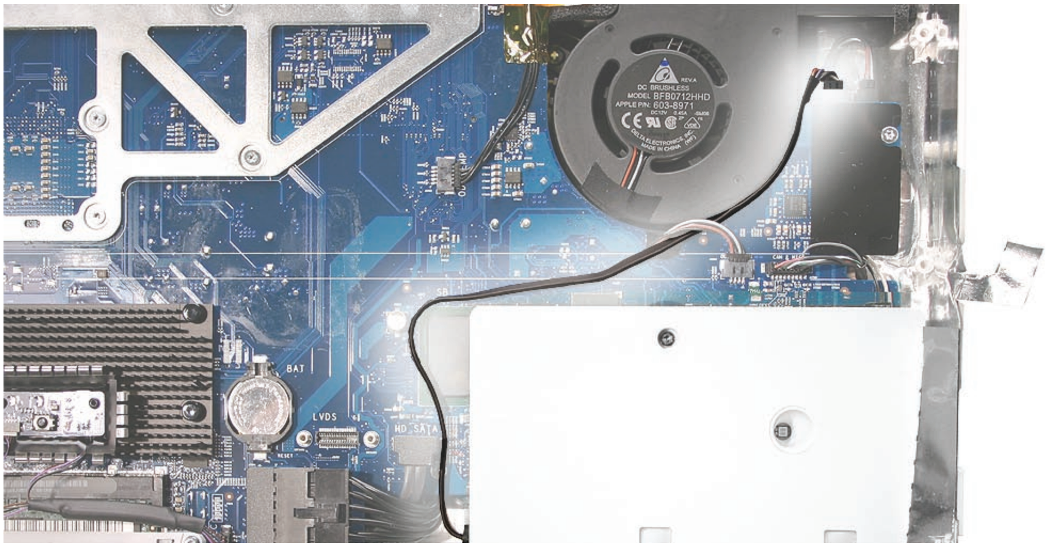
- Access door
- Front bezel
- LCD display panel

Part Location

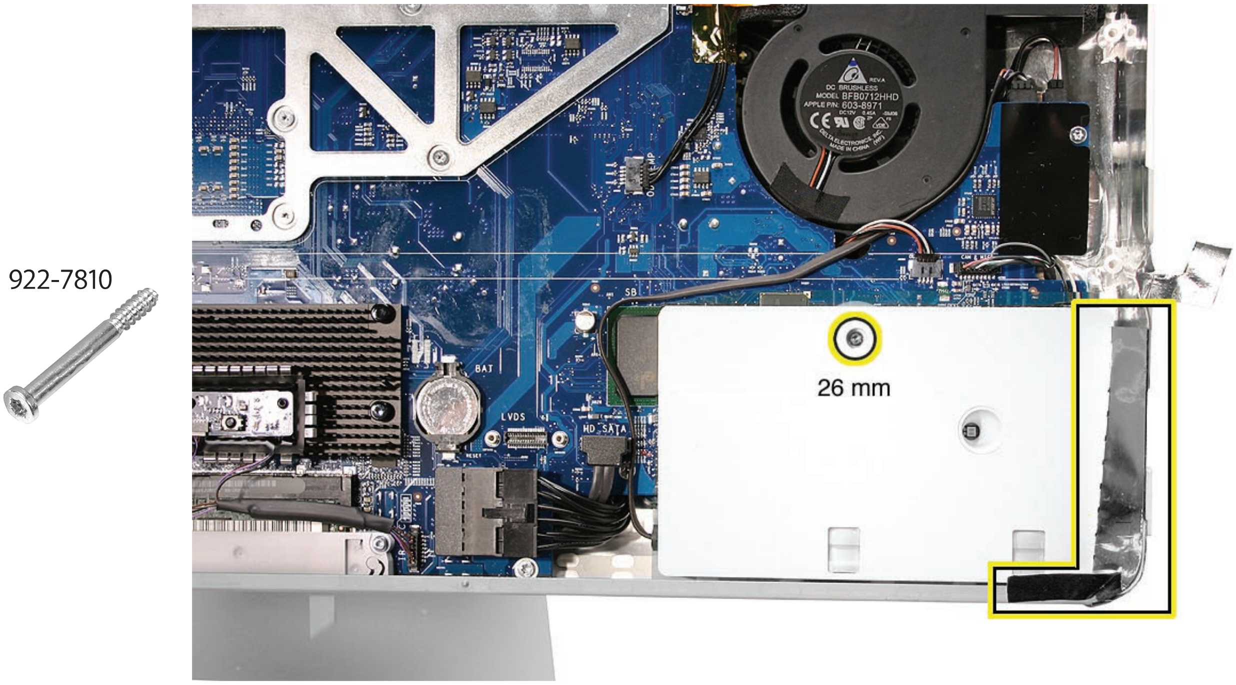


Removing the Right Speaker

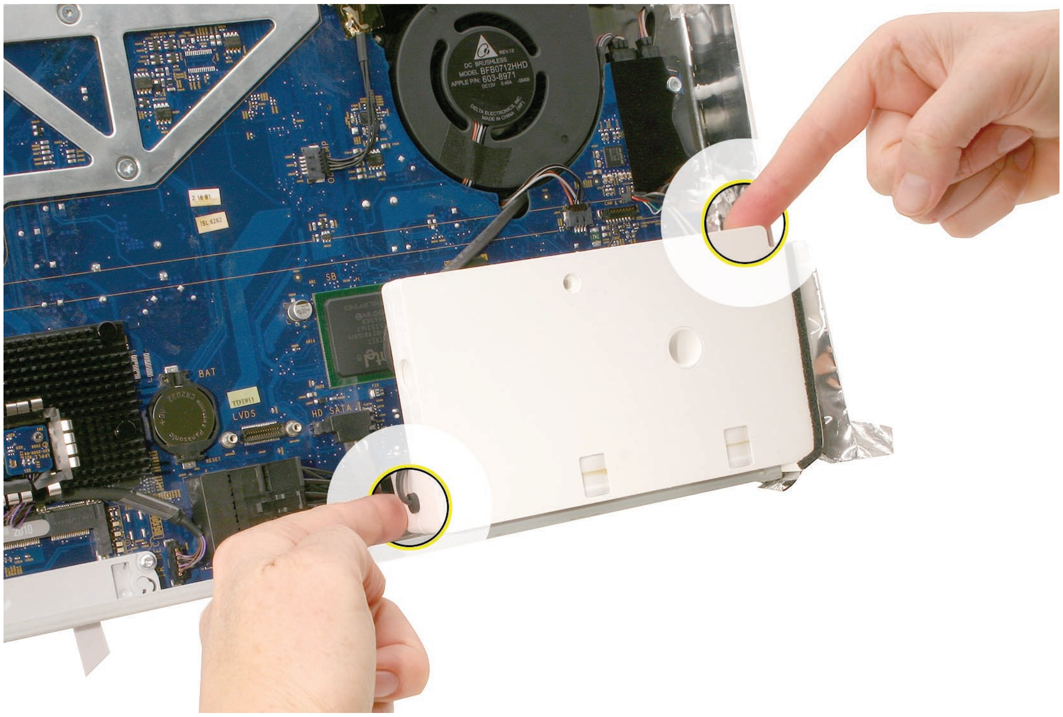
1. Note the speaker cable routing before removing the speaker:
   The right speaker cable starts at the speaker body, tucks under the optical fan cable, down between the fan and the logic board, under the logic board, and connects to the top—inner—right corner of the logic board.



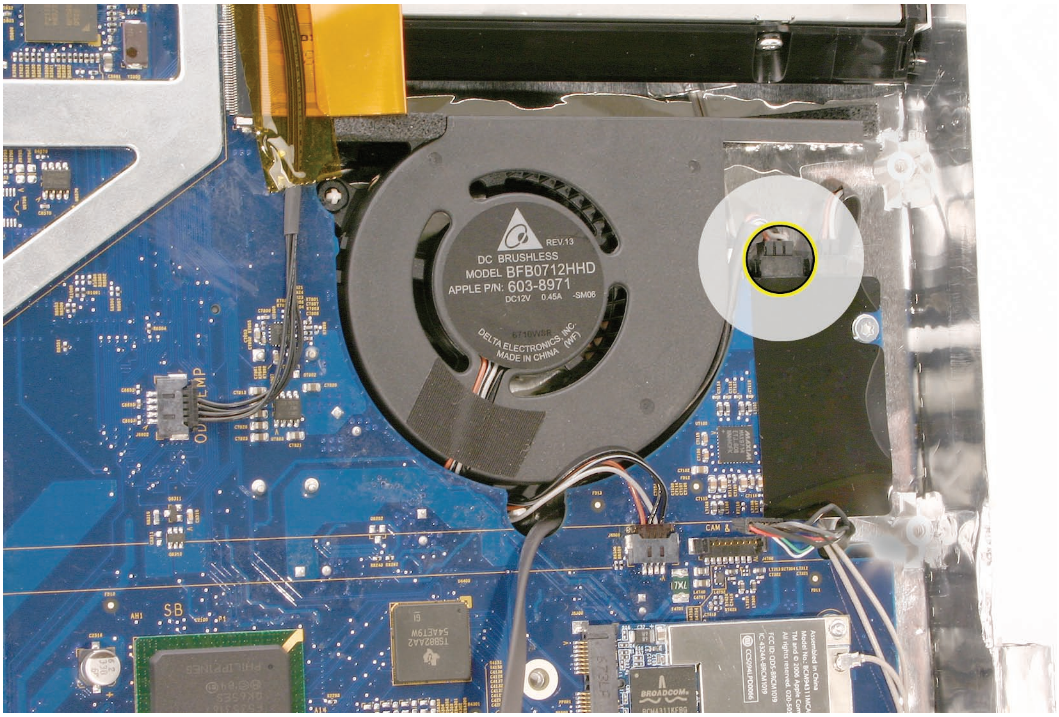
2. Peel up the EMI tape at the lower right corner of the speaker, and remove the 26-mm long screw from the right speaker.
   Replacement Note: The shorter of the two speaker mounting screws is used to secure the right speaker; the longer screw (38-mm long) secures the left speaker.



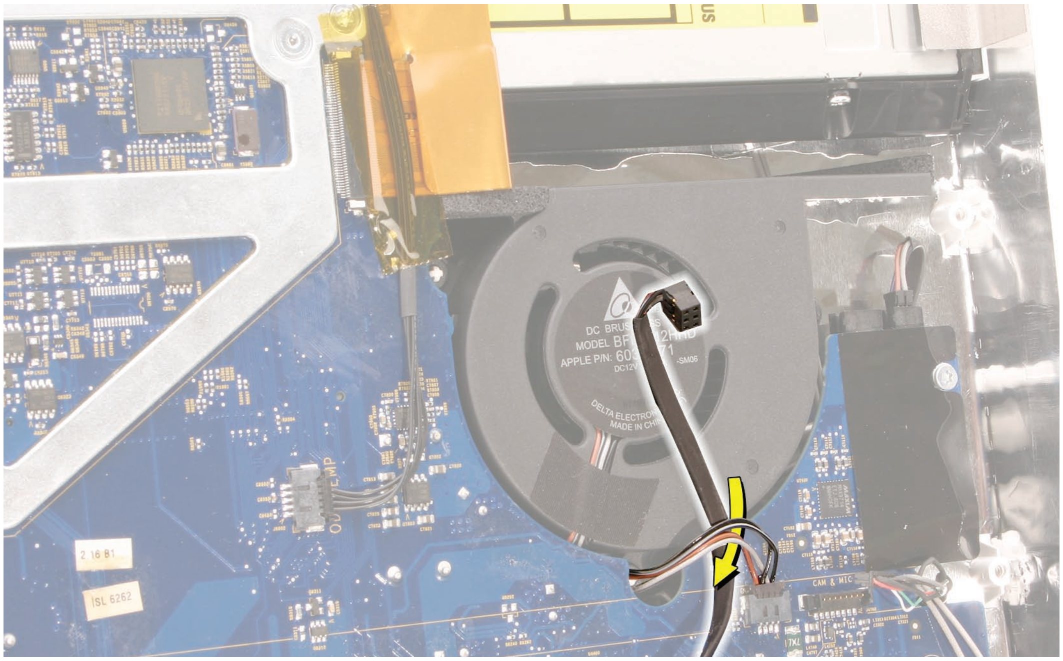
3. Holding the opposite corners of the speaker, pull it up from the computer assembly.



4. Rest the speaker on the table as you disconnect the right speaker cable from the top right corner of the logic board.



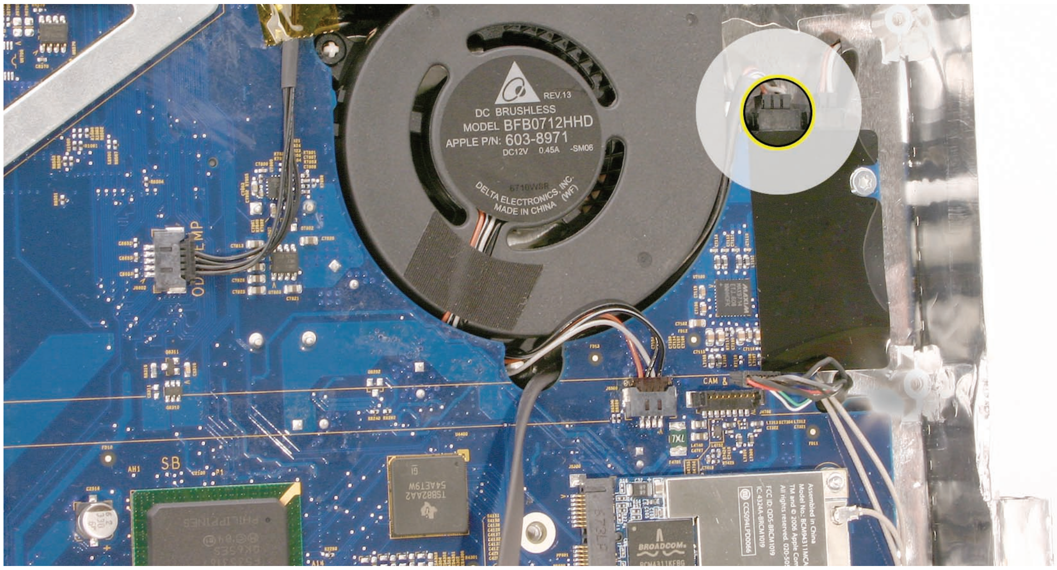
5. Route the speaker cable between the fan and logic board and out from underneath the optical fan cable.



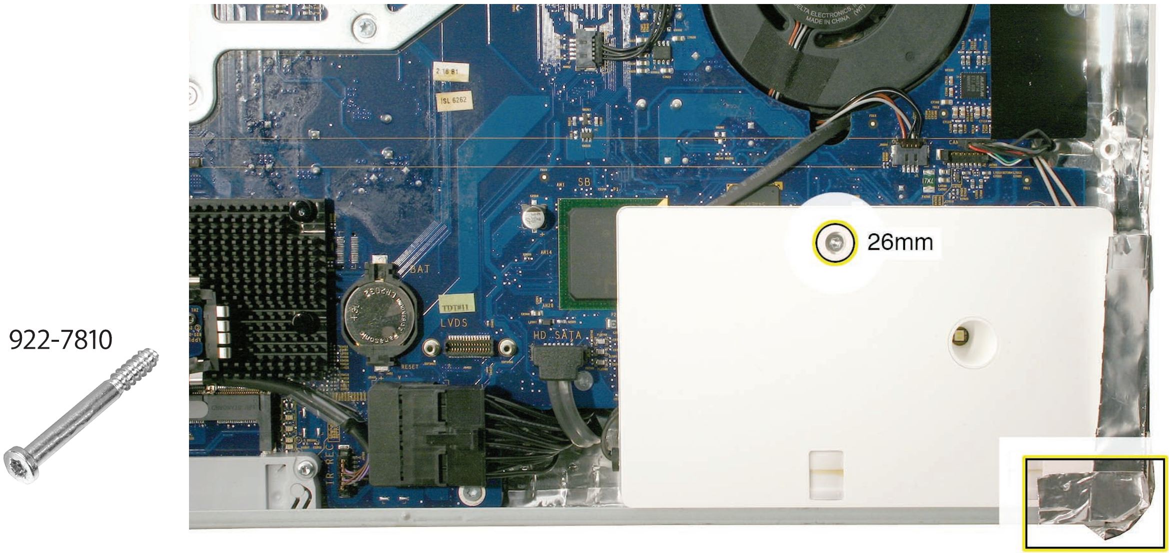
6. Note that a replacement right speaker includes the attached cable, gasket, and tape.

Replacing the Right Speaker

1. Tuck the speaker cable between the CPU fan and the logic board, and connect the speaker cable to the logic board.



2. Install the speaker in the computer assembly.
3. Secure the right speaker with the mounting screw, and reapply the EMI tape.



4. Replace the display panel.
5. Replace the front bezel.
6. Replace the access door.

Optical Drive Fan

Tools

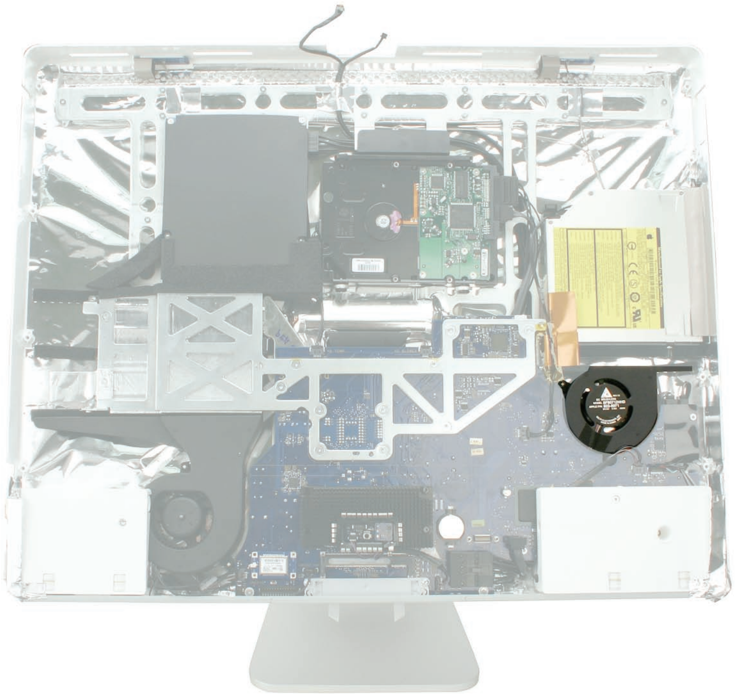
- No tools are required to remove the optical drive fan.

Preliminary Steps

Before you begin, remove the following:

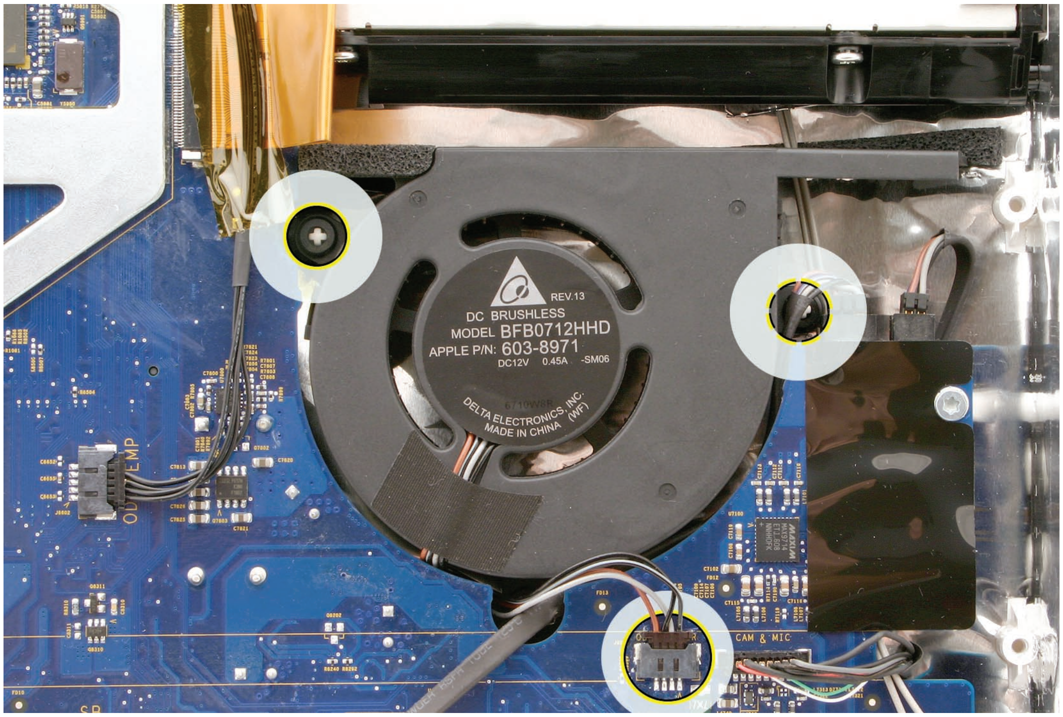
- Access door
- Front bezel
- LCD display panel

Part Location

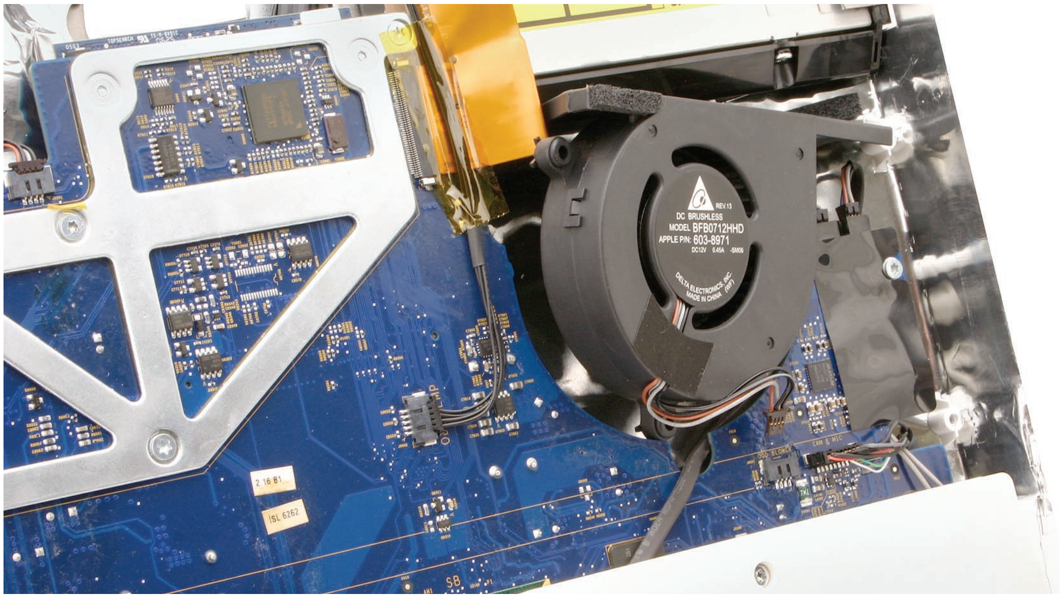


Removing the Optical Drive Fan

1. Note the location of the two fan guide posts, right and left. The right post may be obscured by the speaker cable; however you do not have to discconnect the speaker cable to remove the fan.
2. Disconnect the fan cable from the logic board.

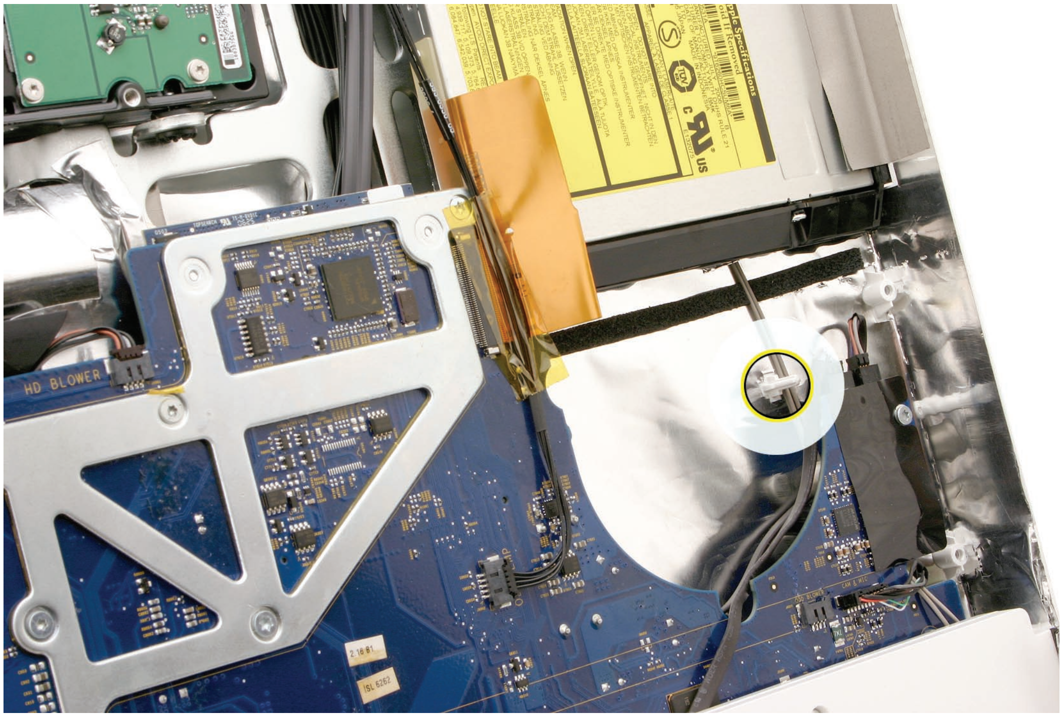


3. Holding the top edge of the fan, pull the body of the fan off of the guide posts on the rear cover.



Replacing the Optical Drive Fan

1. Before installing the fan, make sure the speaker cable and AirPort antenna cables in the rear cover are routed to the right of the guide post shown.



2. Lower the fan onto the guide posts in the rear cover. Connect the fan cable.
3. Replace the display panel.
4. Replace the front bezel.
5. Replace the access door.

Power Supply, AC/DC

Tools

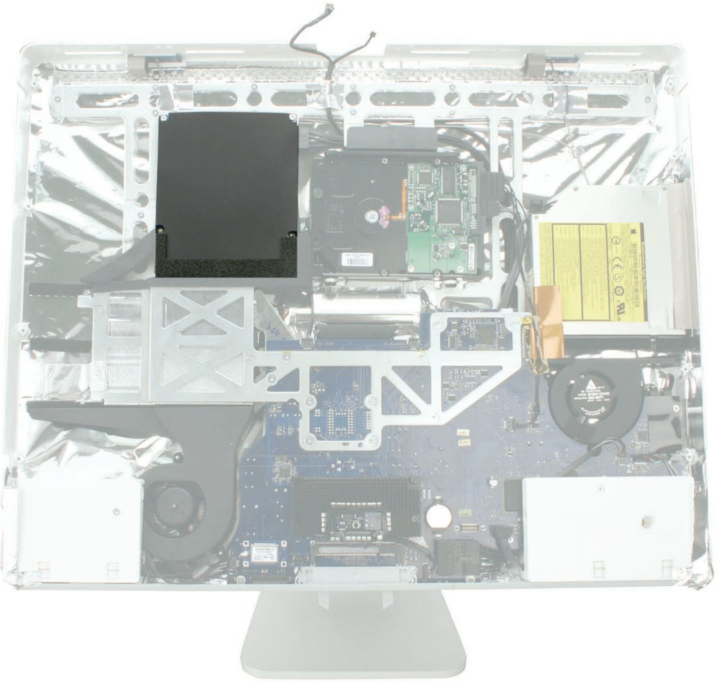
- Torx T10 screwdriver
- Black stick (or other nonconductive plastic or nylon flat-blade tool)

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel

Part Location

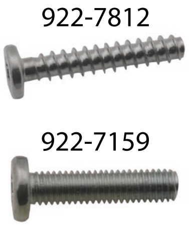


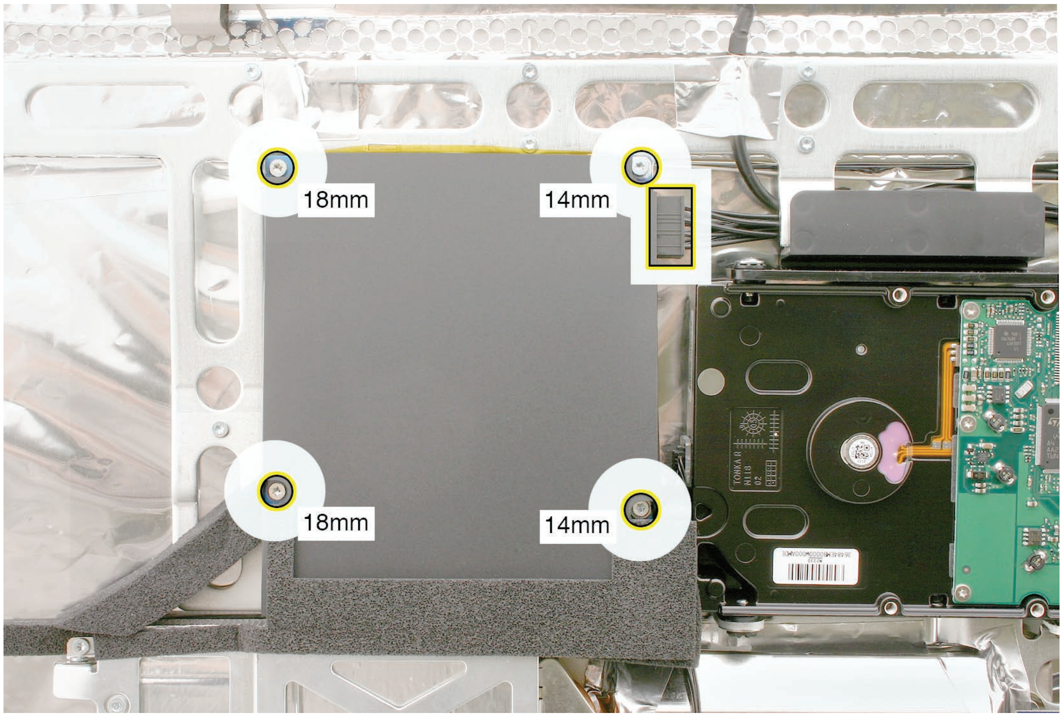
Removing the AC/DC Power Supply

WARNING: The AC/DC power supply PCB remains powered up whenever the system is plugged in, whether or not the system has been turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

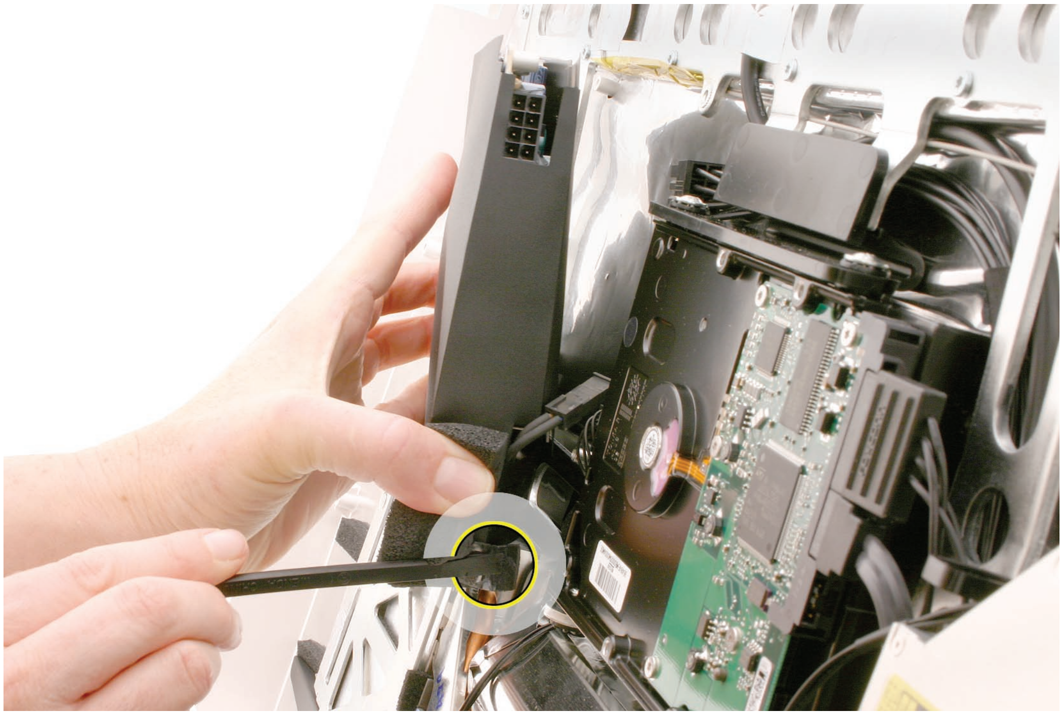
- **Don’t work alone. In the event of an electrical shock it is important to have another individual present who can provide assistance.**
- **Keep one hand in your pocket when working on any iMac (24-inch) system that is plugged in. This will help ensure that your body does not provide a path to ground in the event that you accidentally make contact with the line voltage.**
- **Don’t wear jewelry, watches, necklaces, or other metallic articles that could present a risk if they accidentally make contact with the power supply circuitry.**

1. Using a Torx T10 screwdriver, remove the four screws from the AC-DC power supply board. **Replacement Note:** Install the shorter machine screws (at right corners) first when installing the power supply.
2. Pinch the back tab on the locking connector to disconnect the power supply cable at the right side of the drive.

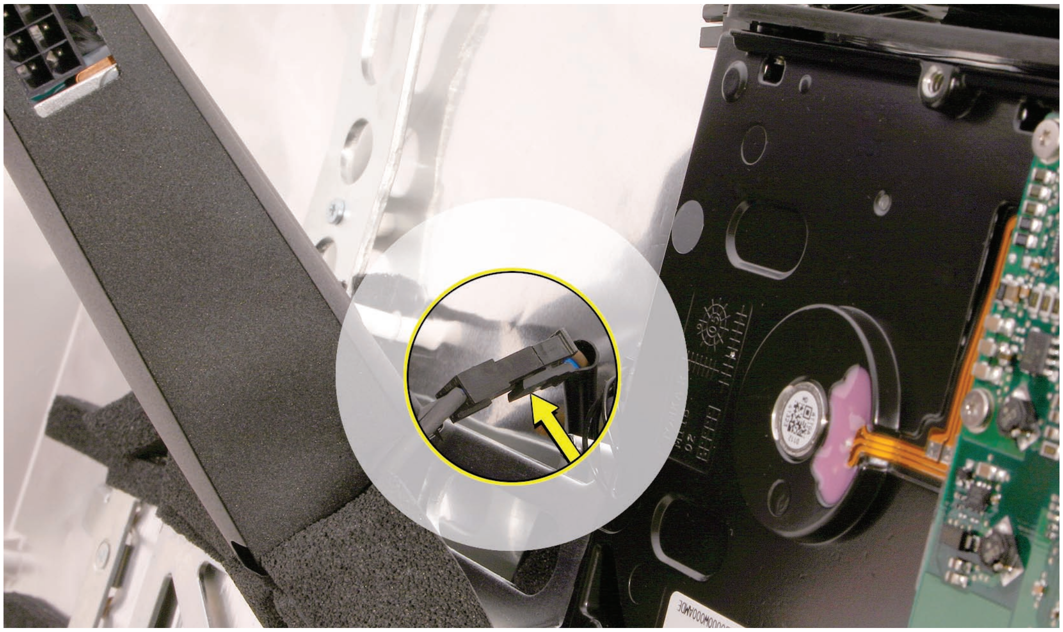




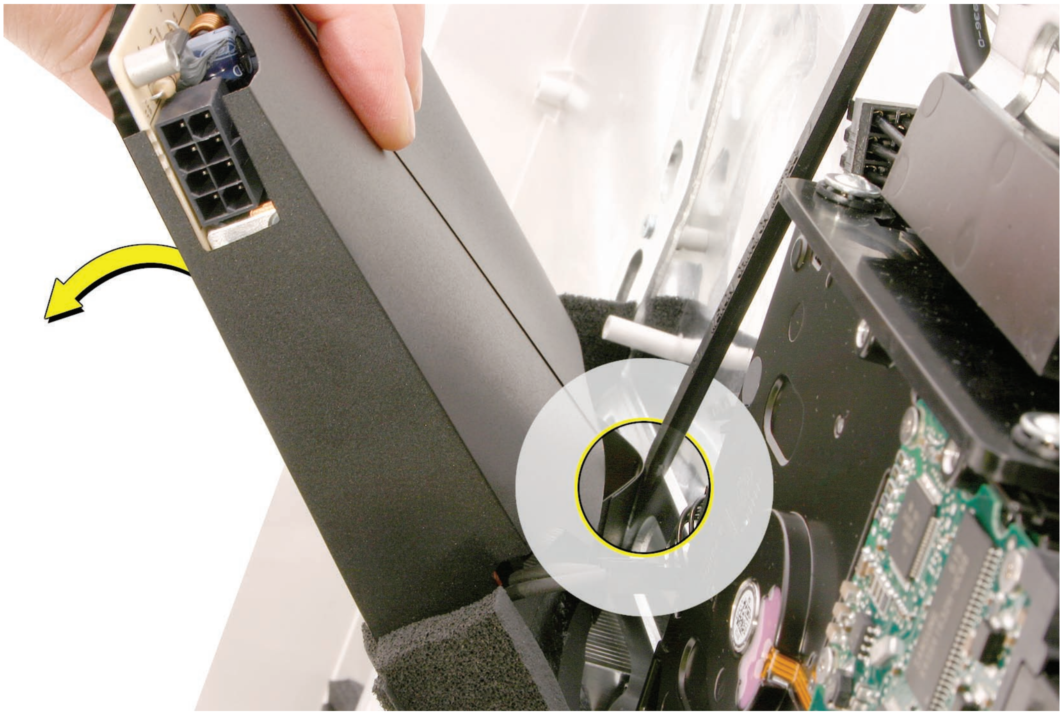
3. Position the computer assembly so you can see under the right side of the power supply. Tilt the power supply slightly and see how the adhesive plastic at the lower right corner of the body connects the power supply to the foam gasket and chassis. Use a black stick to wedge between the plastic and the chassis and pry up the lower corner.

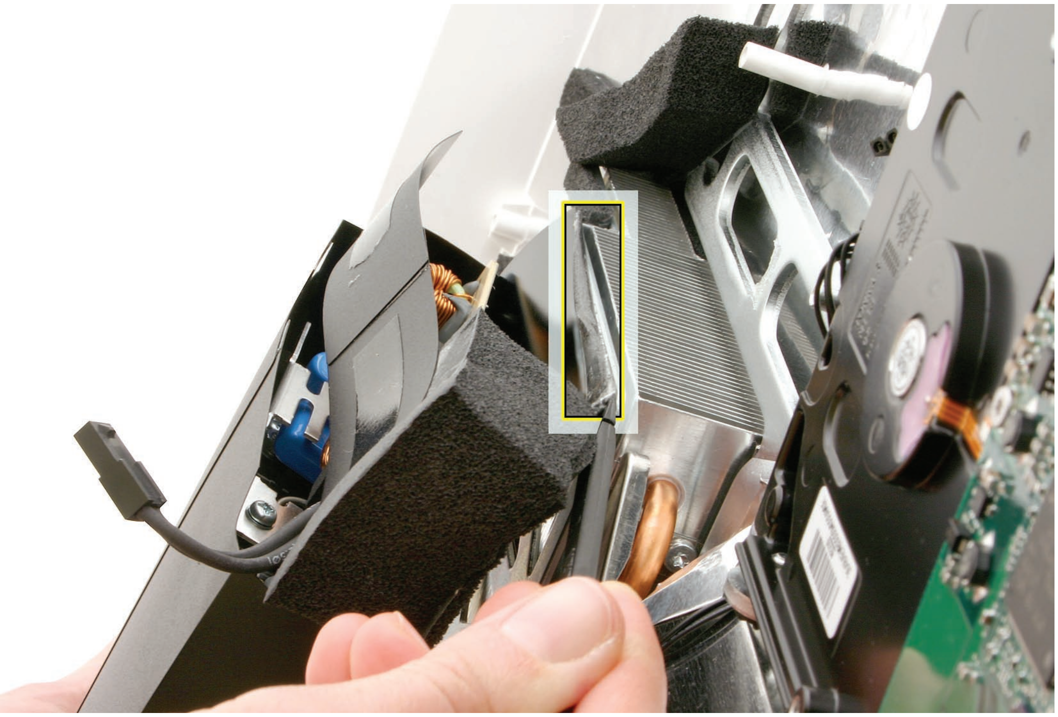


4. Tilt the power supply to disconnect the lower right locking cable from the power supply.

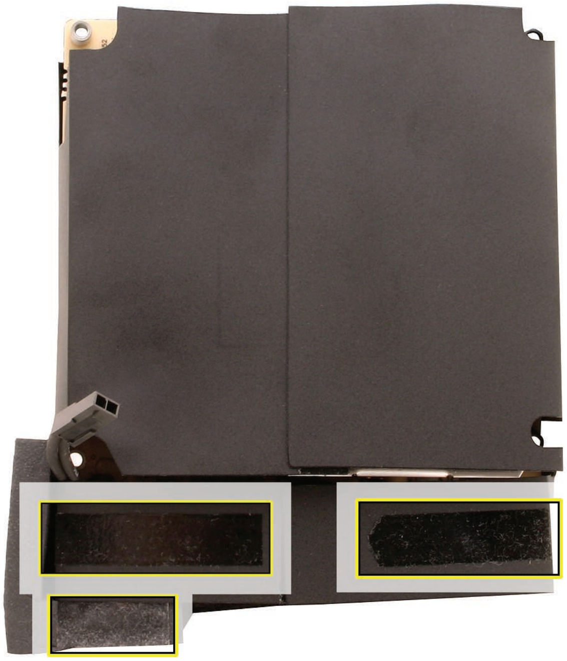


5. Tilt back the power supply module, and use a black stick to free the adhesive on the power supply sleeve from the metal frame.





6. On the flip side of the power supply, note the adhesive areas that stick to the frame and chassis.



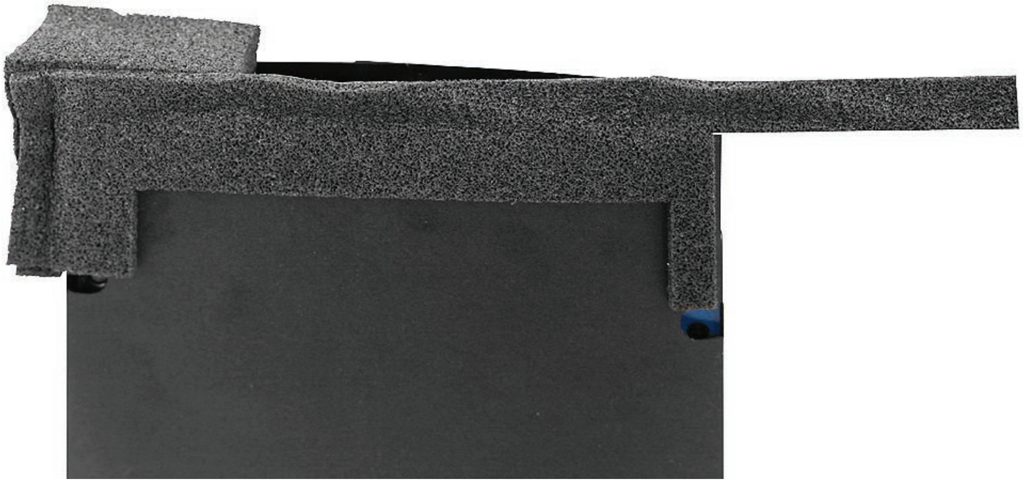
7. Note that a replacement power supply comes with the attached cable, mylar sleeve, foam gaskets, and adhesive strips.

Replacing the AC/DC Power Supply

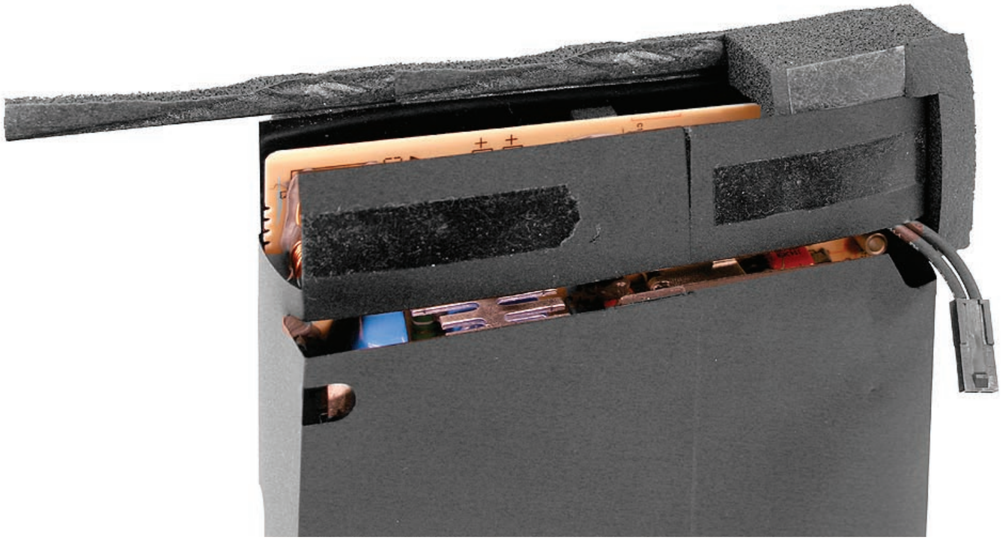
WARNING: The AC/DC power supply PCB remains powered up whenever the system is plugged in, whether or not the system has been turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

- **Don’t work alone. In the event of an electrical shock it is important to have another individual present who can provide assistance.**
- **Keep one hand in your pocket when working on any iMac (Early 2006) system that is plugged in. This will help ensure that your body does not provide a path to ground in the event that you accidentally make contact with the line voltage.**
- **Don’t wear jewelry, watches, necklaces, or other metallic articles that could present a risk if they accidentally make contact with the power supply circuitry.**

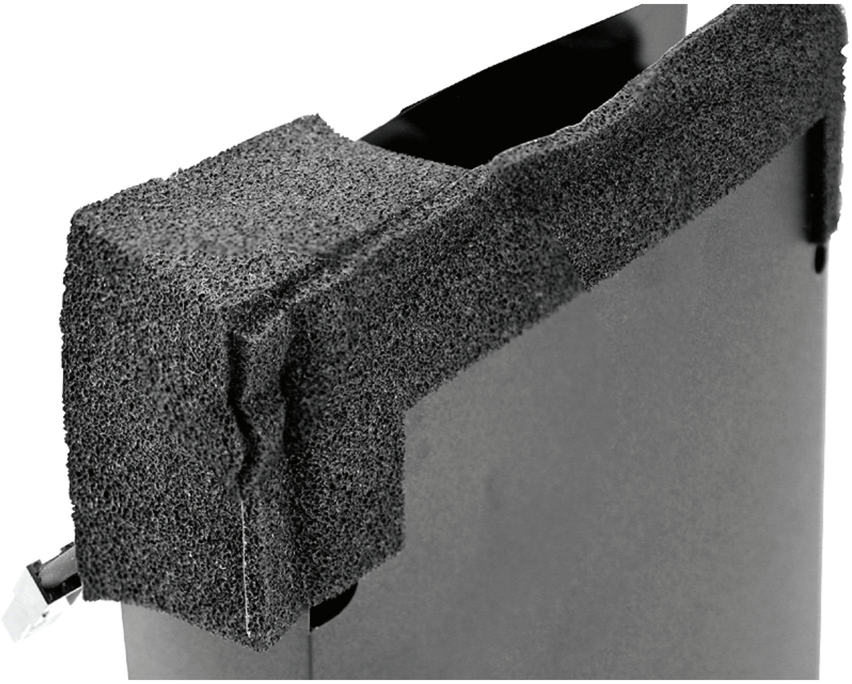
1. If you are installing a new power supply, turn the power supply upside down and stick the two foam gaskets onto the bottom edges of the mylar sleeve, where shown.



2. On a new power supply, install the longest gasket first. Then make sure the two foam gaskets stick to each other and to the mylar sleeve before installing the power supply in the computer assembly.

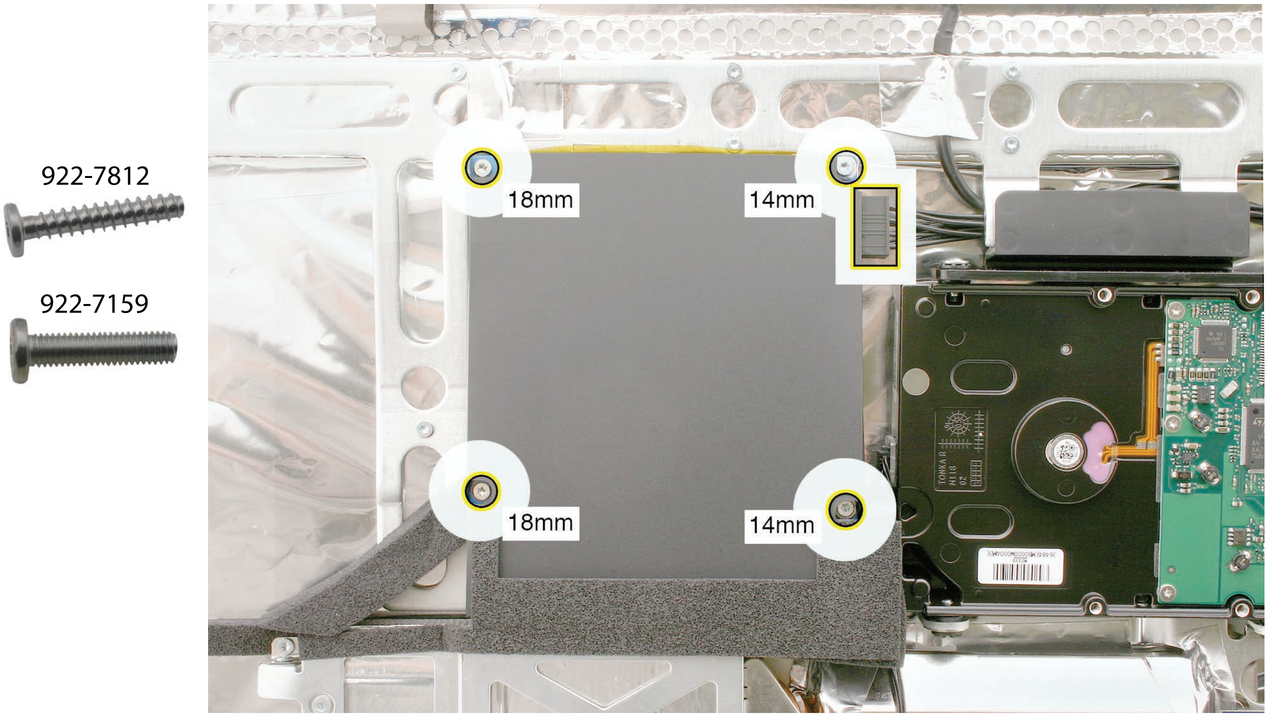


3. On a new power supply, make sure the L-shaped foam gasket completely covers the lower right corner of the power supply.



4. Tilt up the power supply and install the lower and upper cables.

5. Replace the power supply screws. Install the machine screws (top right corner and bottom right corner) first when installing the power supply.


922-7812
922-7159
18mm
14mm
18mm
14mm

6. Replace the display panel.
7. Replace the front bezel.
8. Replace the access door.

Hard Drive

Tools

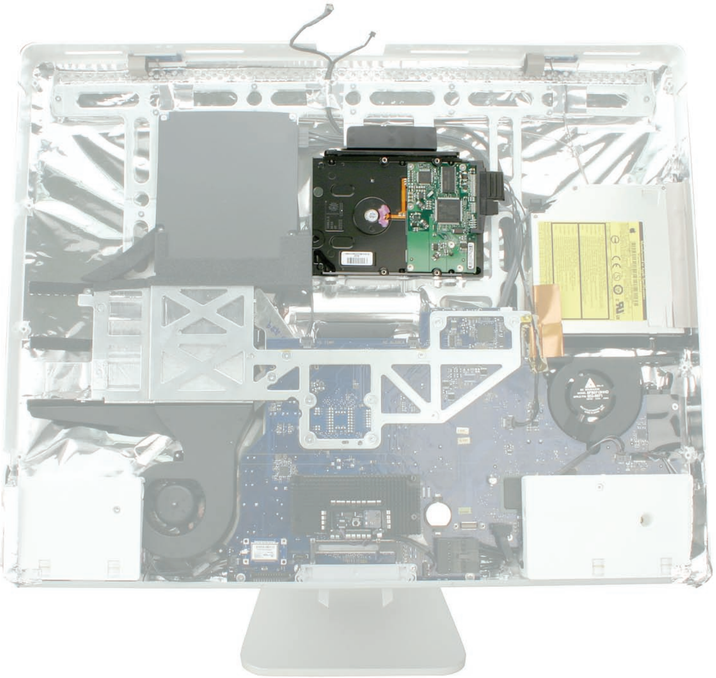
- Torx T10 screwdriver
- Torx T8 screwdriver (if removing clip from hard drive)
- Permanent ink, felt-tip pen

Preliminary Steps

Before you begin, remove the following:

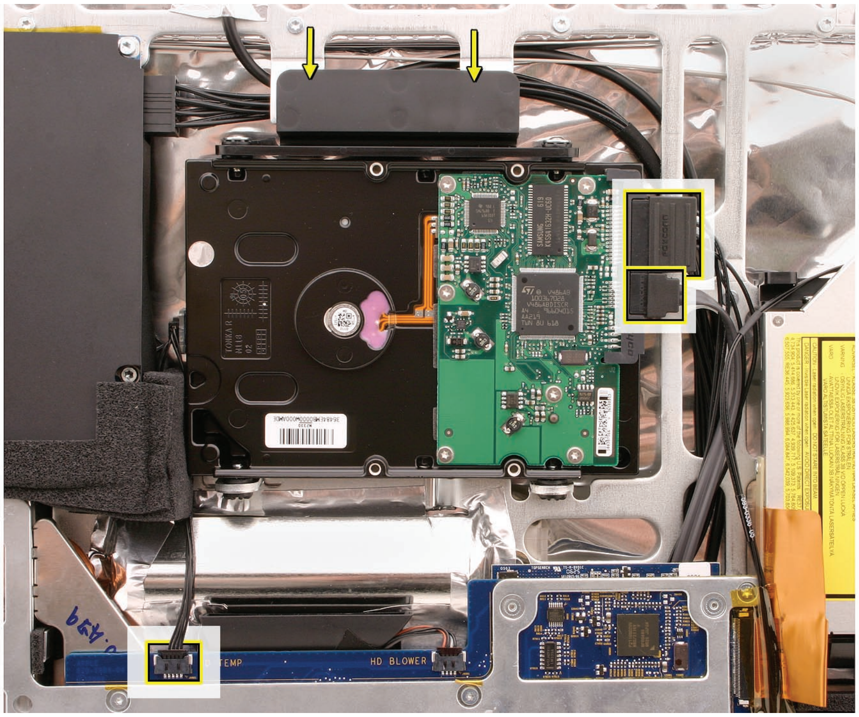
- Access door
- Front bezel
- LCD display panel

Part Location

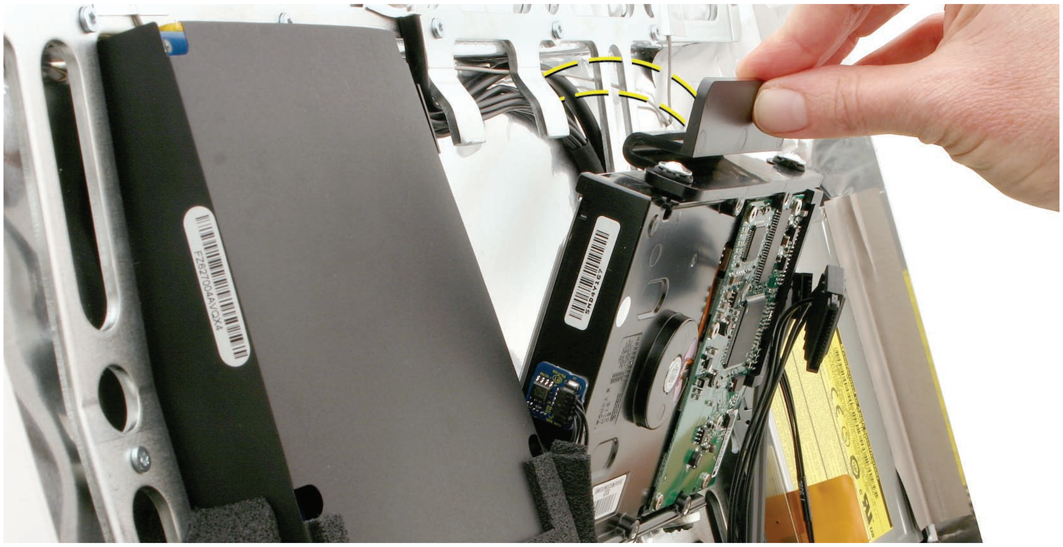


Removing the Hard Drive

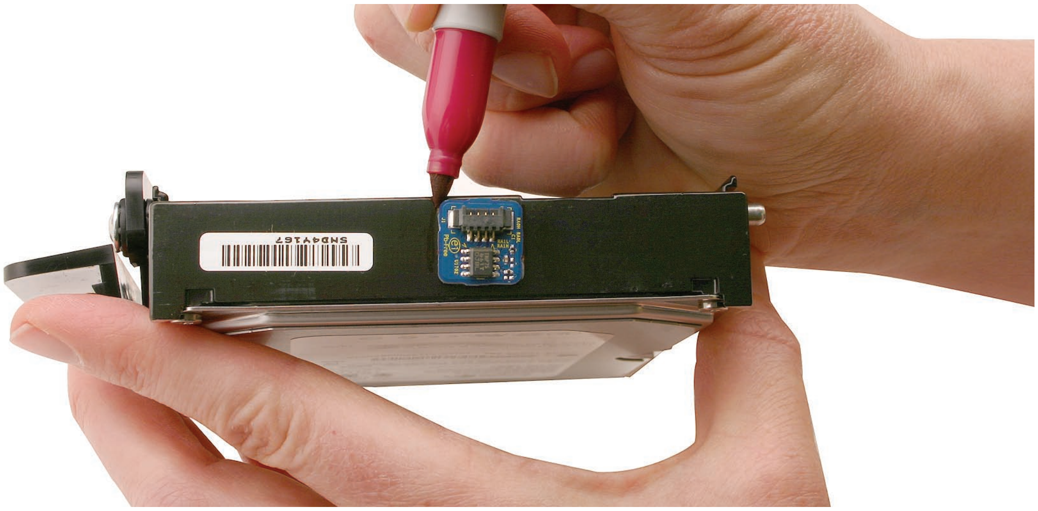
1. Disconnect the hard drive temperature sensor cable from the top of the logic board. Notice that the sensor cable runs under the foam gasket on the power supply.
2. Disconnect the power and data cables from right side of the hard drive.
3. Squeeze the black plastic clip at the top of the hard drive to loosen it from the chassis.



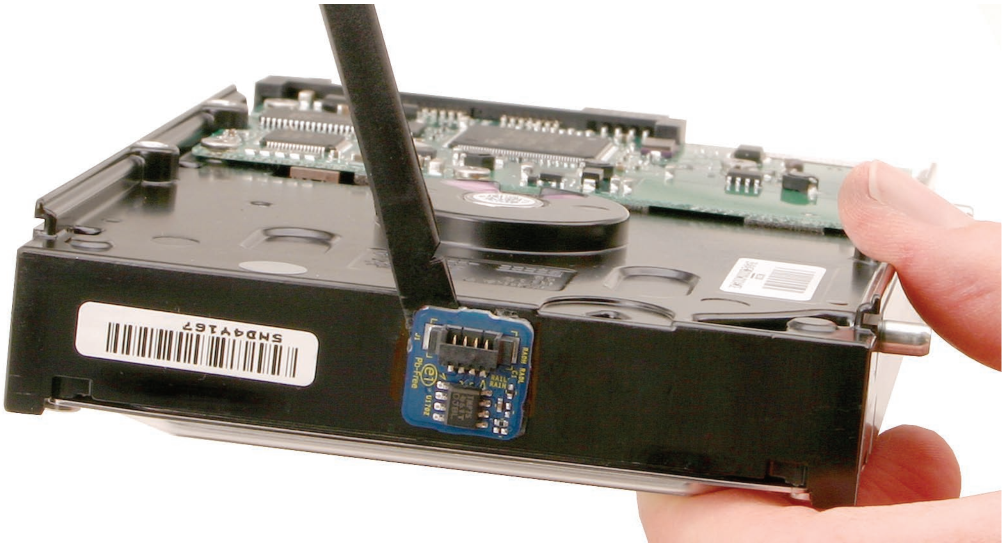
4. Tilt out the hard drive from the computer assembly.



5. If you are replacing the hard drive, remove the temperature sensor, screws, and clip to transfer to the replacement drive.
6. Replacement Note: Check the position of the temperature sensor. If you will be transferring it to a replacement drive, use a permanent ink pen to draw an outline of the sensor location. Refer to that marking when placing the sensor on a new hard drive.

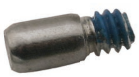


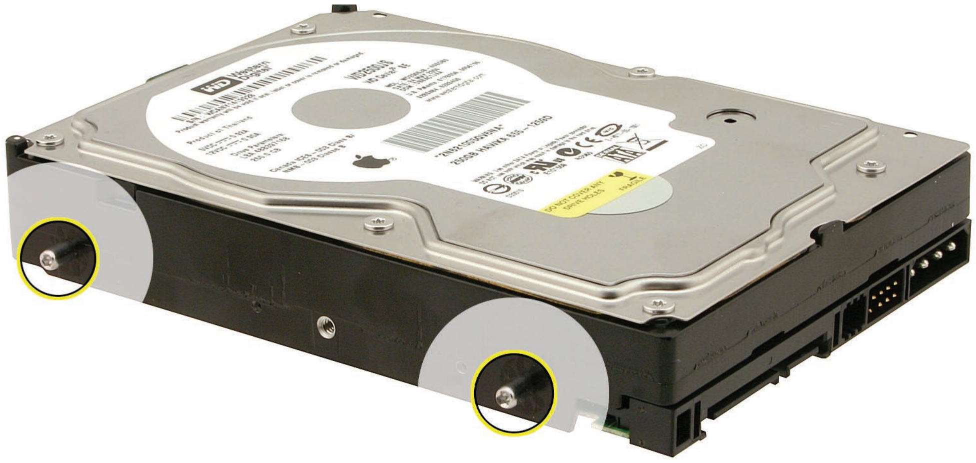
7. Use a black stick to peel up the temperature sensor from the adhesive on the left end of the drive.



8. At the lower side of the drive, remove the two screw pins.

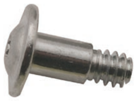
922-7001

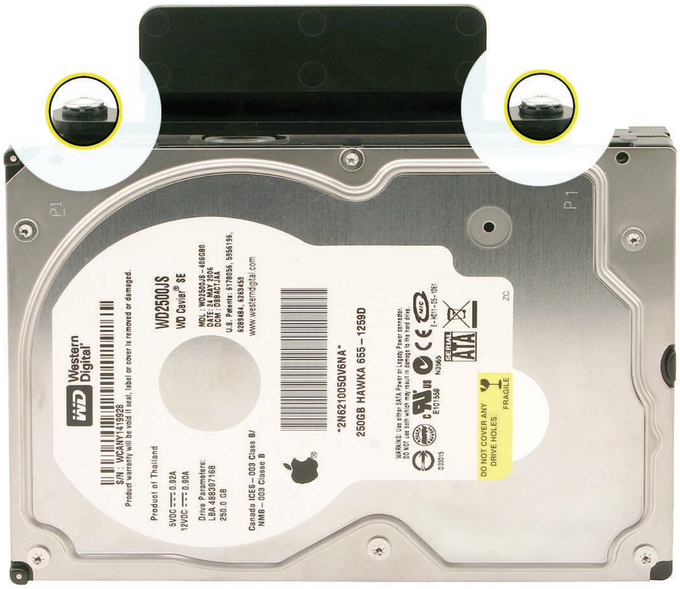




9. At the upper side of the drive, remove the two screws and the plastic clip.

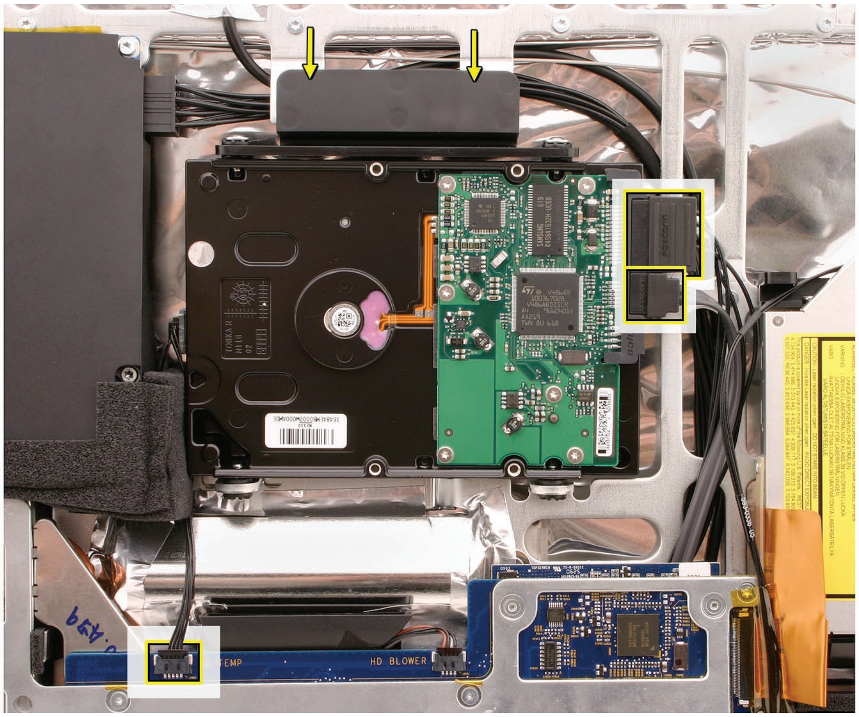
922-7019



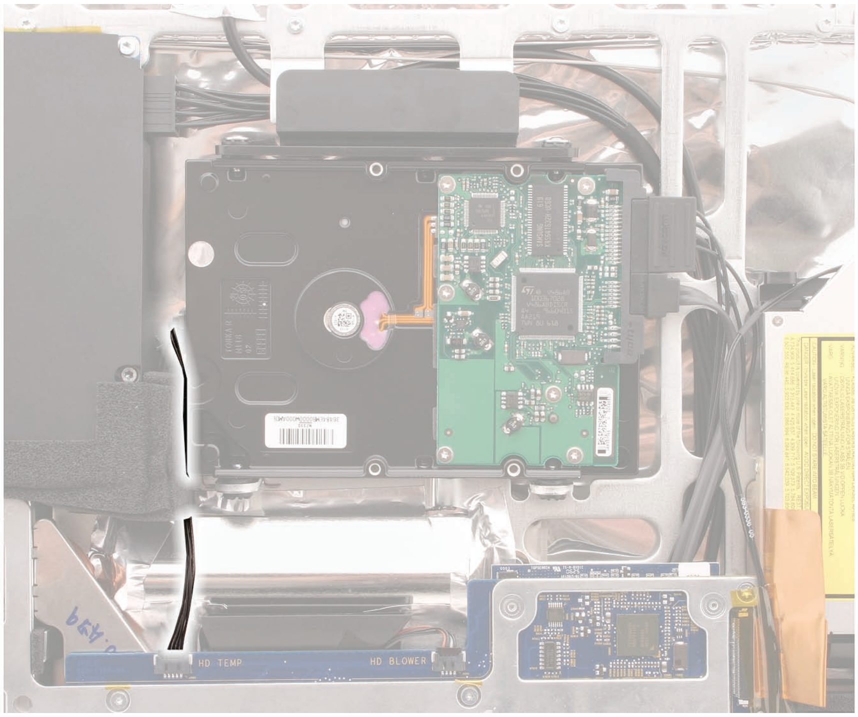


Replacing the Hard Drive

1. If you are installing a new hard drive, transfer the screws, clip, and temperature sensor to the replacement drive.
2. Tilt the drive into the chassis and make sure it is secure in the chassis at the hard drive clip.
3. Connect the hard drive data and power cables to the hard drive.
4. Connect the hard drive temperature sensor to the logic board.



5. Make sure the temperature sensor cable runs under the foam gasket at the power supply.



6. Replace the display panel.
7. Replace the front bezel.
8. Replace the access door.
9. Important: After a new hard drive replacement, reinstall the operating system that shipped with the computer to ensure that it has the proper thermal management software.

Hard Drive Sensor Cable

Tools

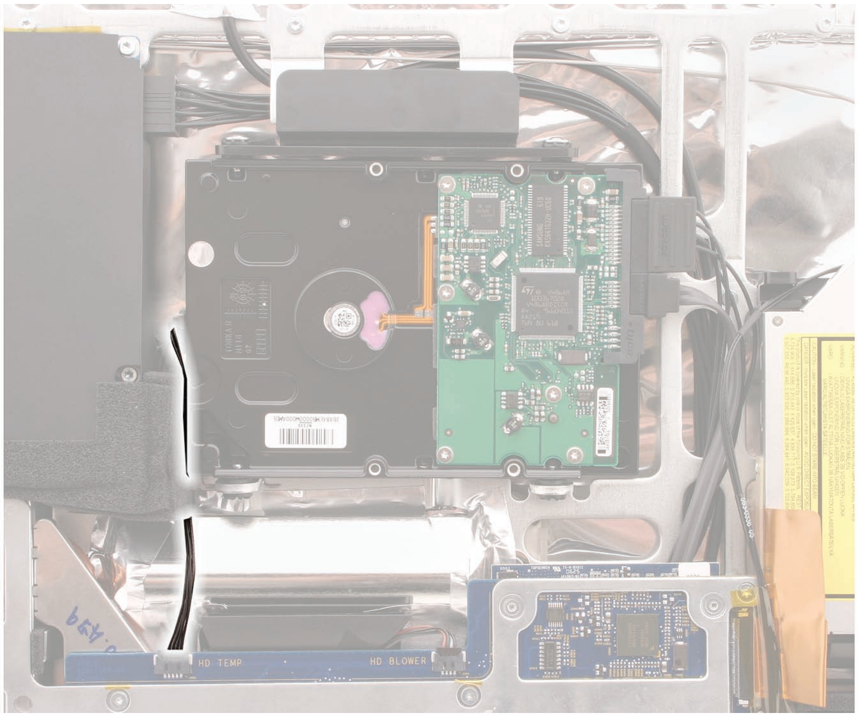
No tools are required for this procedure.

Preliminary Steps

Before you begin, remove the following:

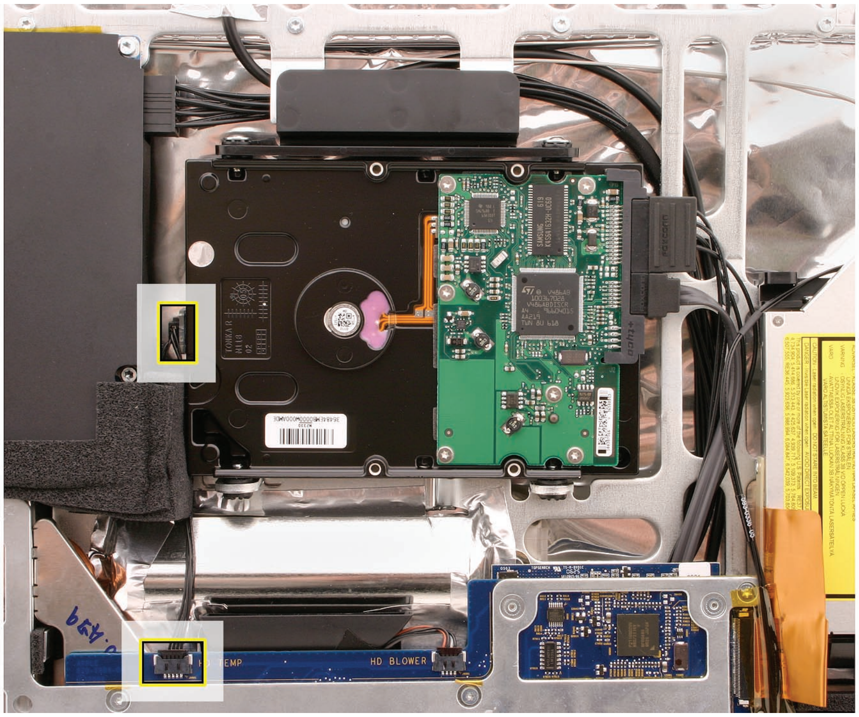
- Access door
- Front bezel
- LCD display panel

Part Location

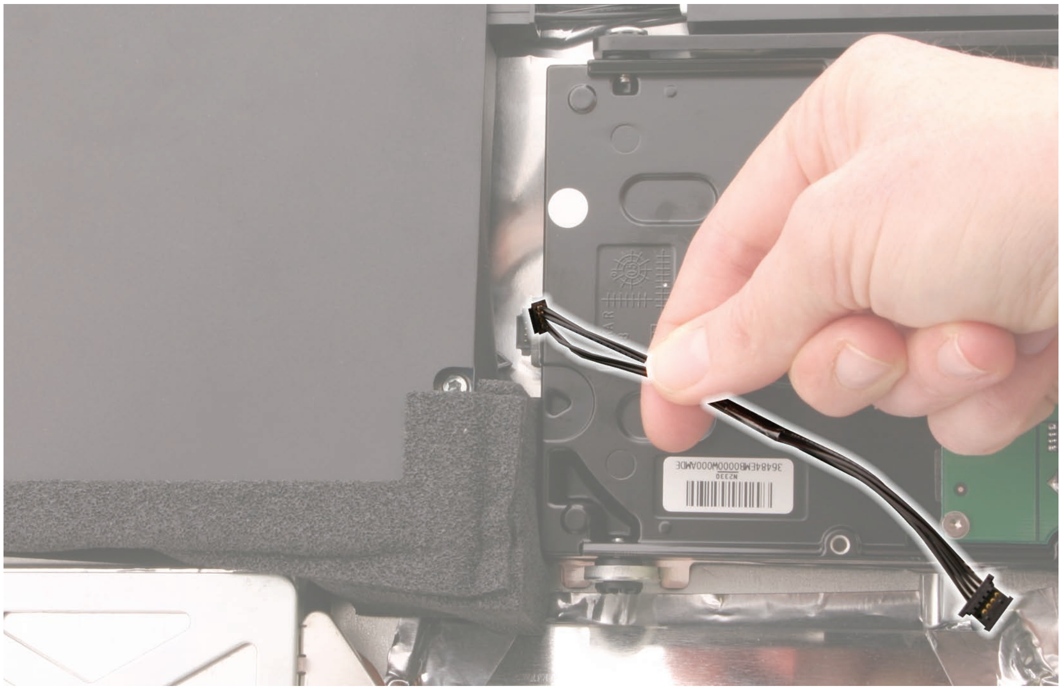


Removing the Hard Drive Sensor Cable

1. Note the sensor cable routing. Disconnect the temperature sensor cable from its connector on the left end of the hard drive and on the top edge of the logic board.

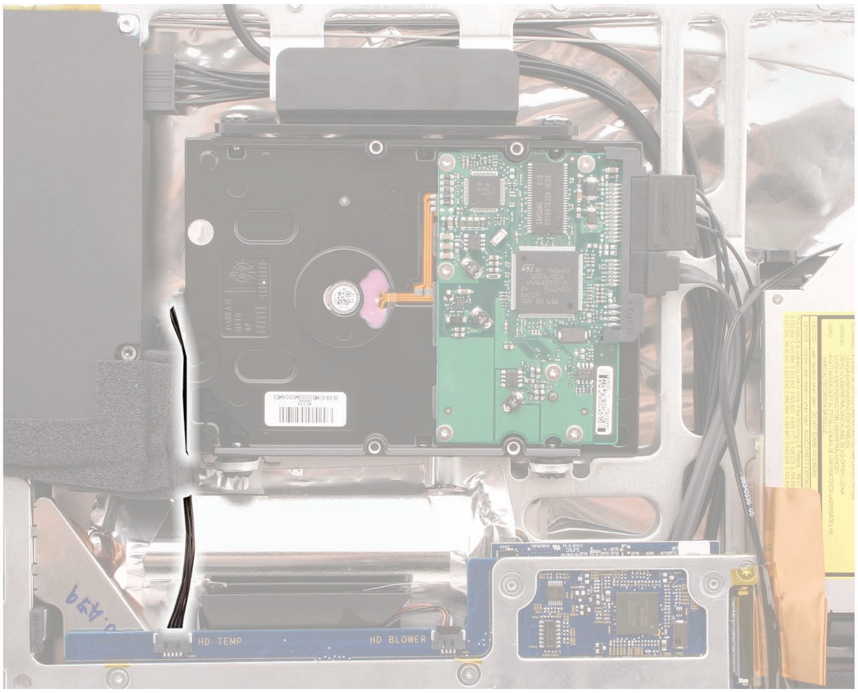


2. Remove the sensor cable from under the foam gasket on the power supply.



Replacing the Hard Drive Sensor Cable

1. Connect the sensor cable to the hard drive and the logic board. Make sure the cable runs under the foam gasket on the power supply.



2. Replace the display panel.
3. Replace the front bezel.
4. Replace the access door.

CPU Fan

Tools

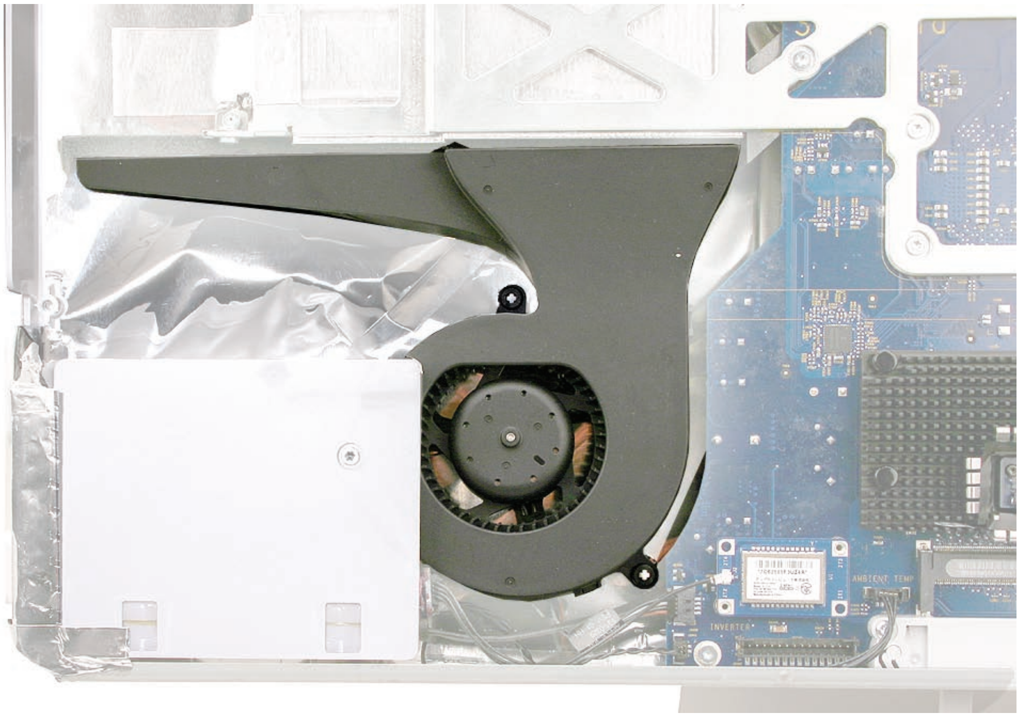
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

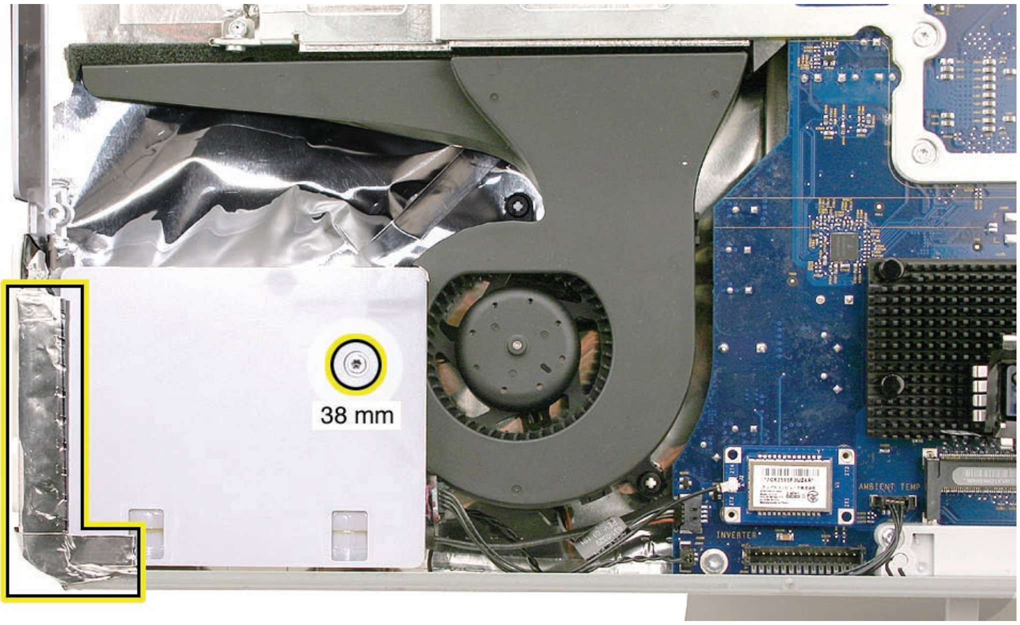
- Access door
- Front bezel
- LCD display panel

Part Location

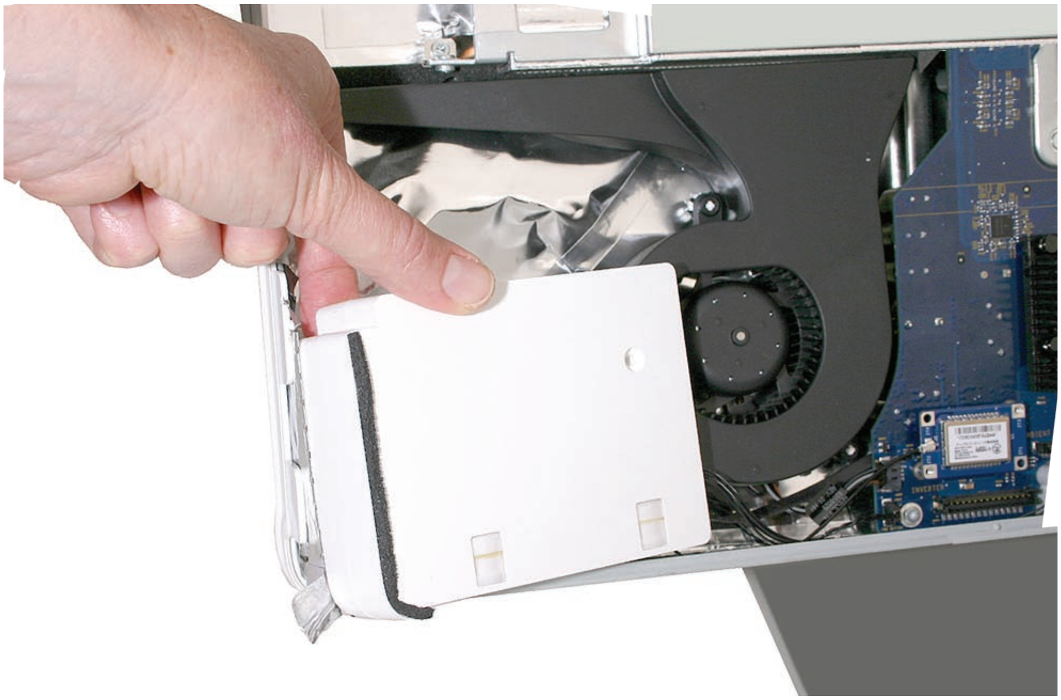


Removing the CPU Fan

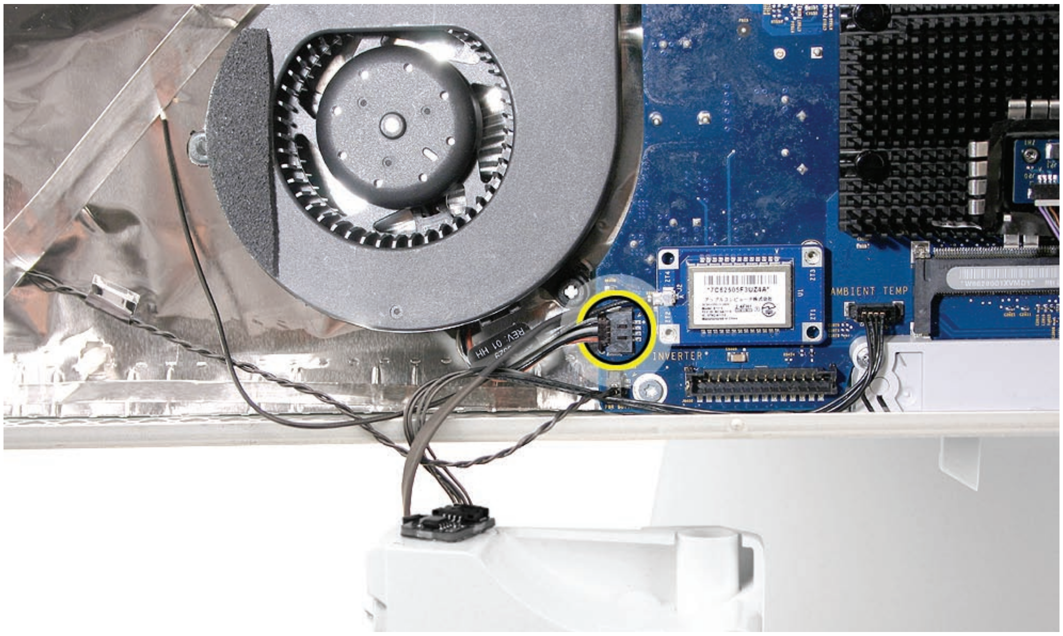
1. Remove the left speaker screw and peel up the EMI tape at the lower corner of the speaker.



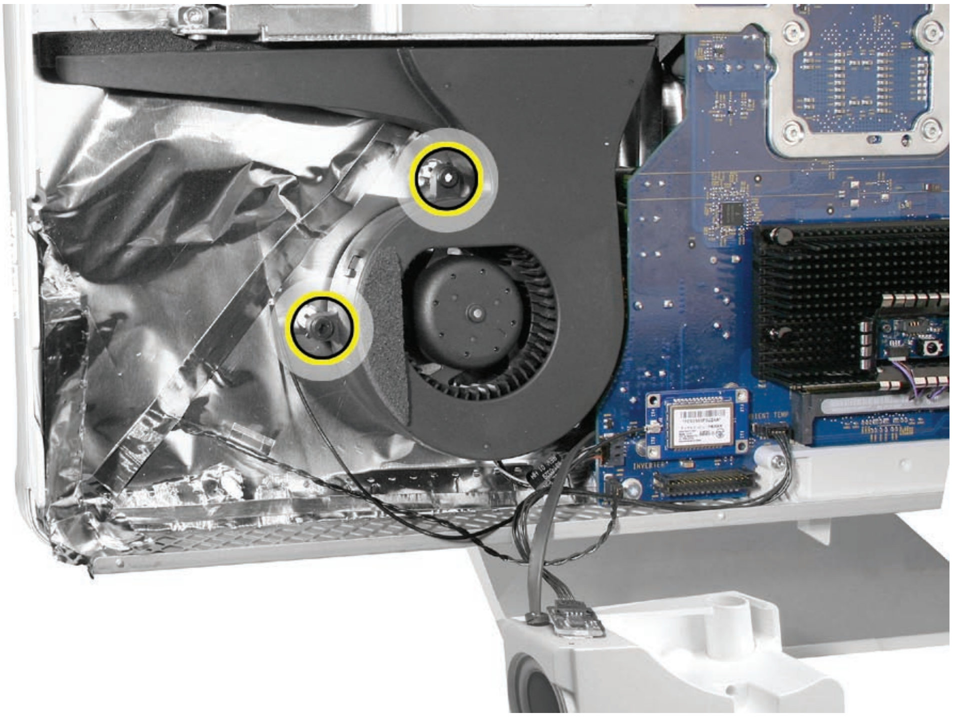
2. Remove the body of the left speaker, and, without straining the speaker cable, rest the speaker on the table.



3. Disconnect the fan cable from the lower left corner of the logic board.

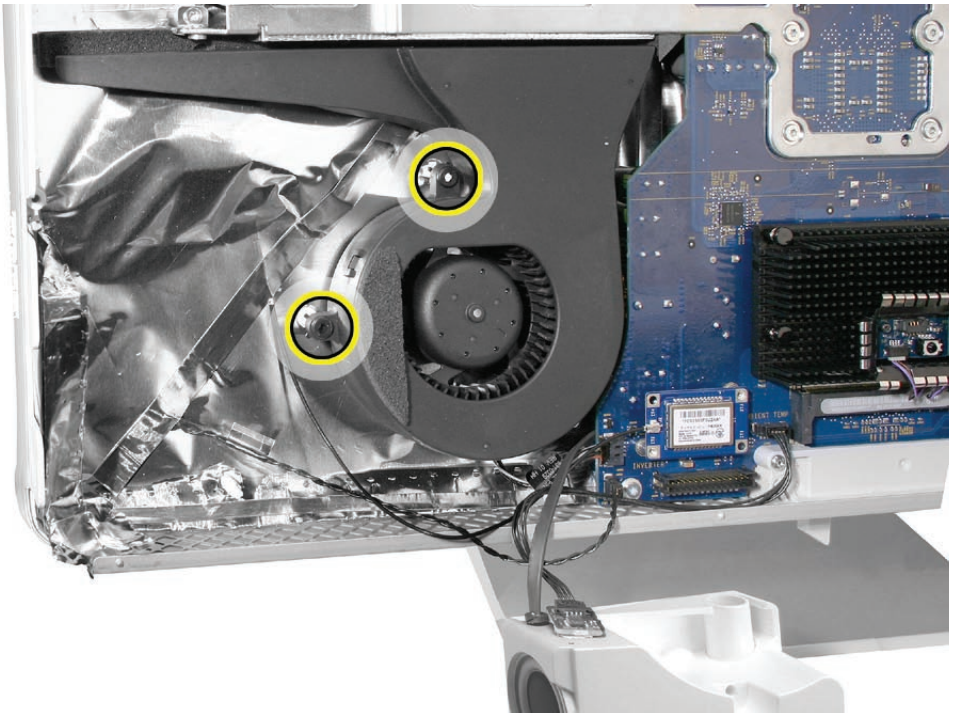

AMBIENT TEMP
INVERTER

4. Pull out the fan from the guide posts on the rear cover.



Replacing the CPU Fan

1. Lower the fan onto the white guide posts in the rear cover. Push it down snug onto the posts.



2. Replace the left speaker.
3. Replace the display panel.
4. Replace the front bezel.
5. Replace the access door.

Optical Sensor Cable

Tools

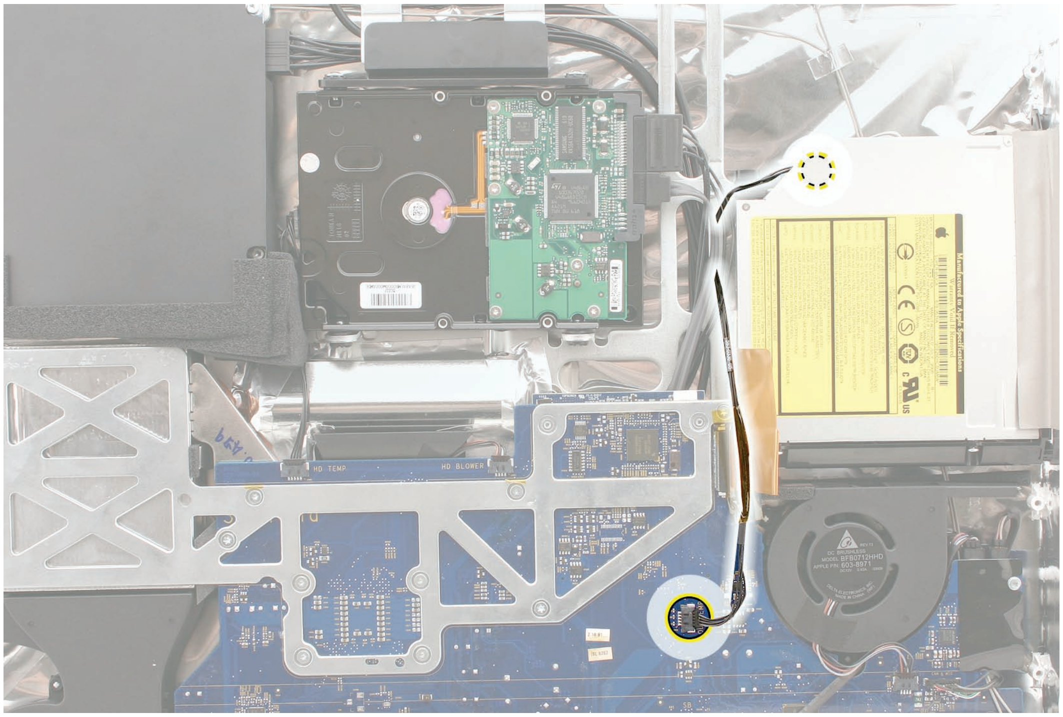
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel

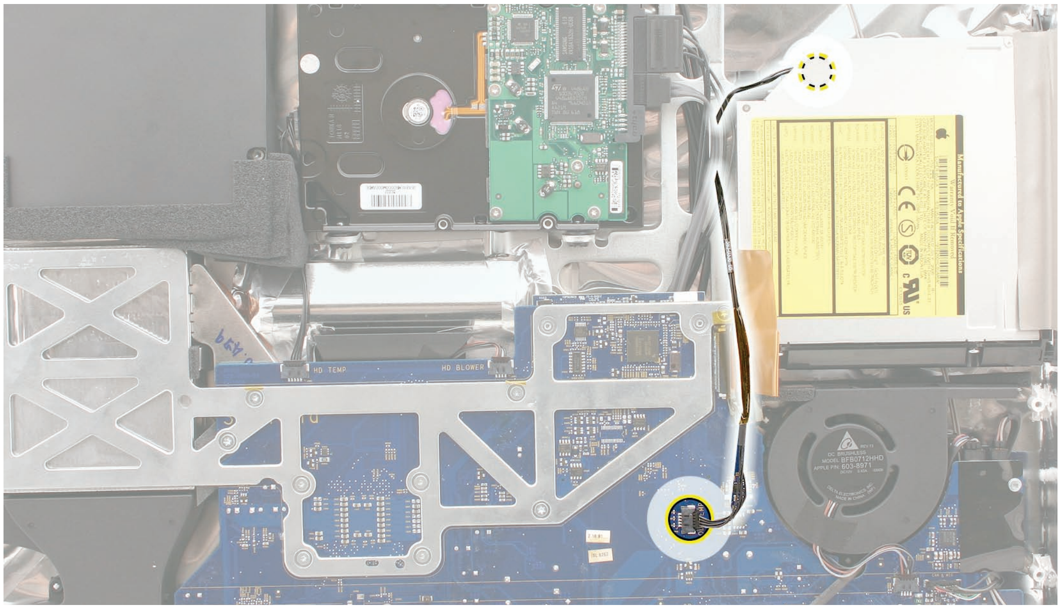
Part Location



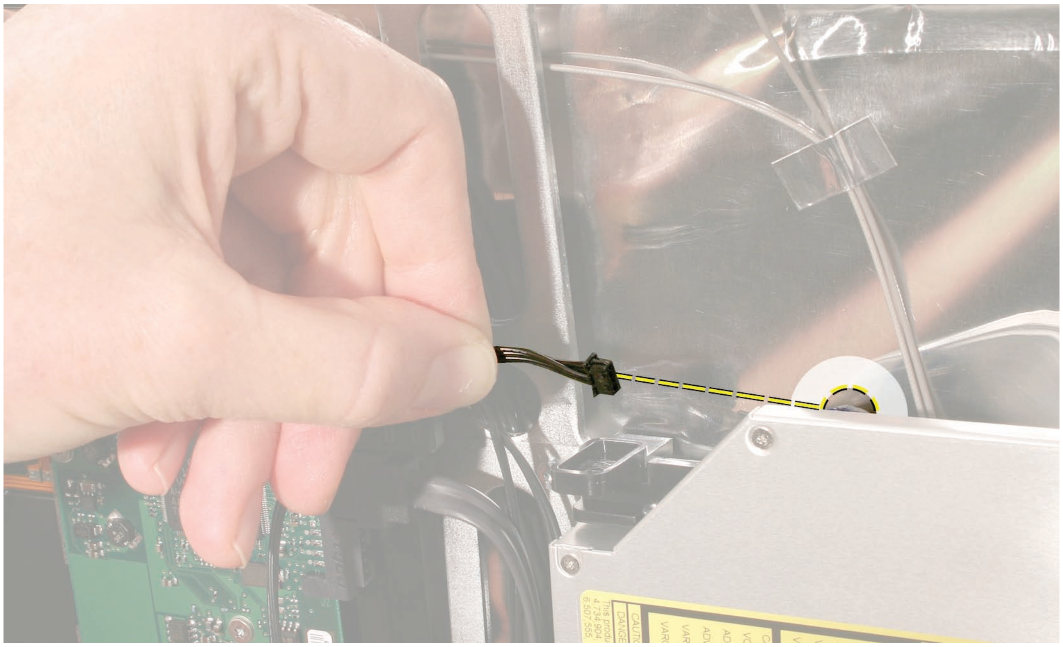
Removing the Optical Sensor Cable

Warning: Handle the optical drive at the side edges only. Do not touch or press anywhere else on the drive.

1. Note the sensor cable routing. Disconnect the temperature sensor cable from its connector near the optical fan on the logic board.

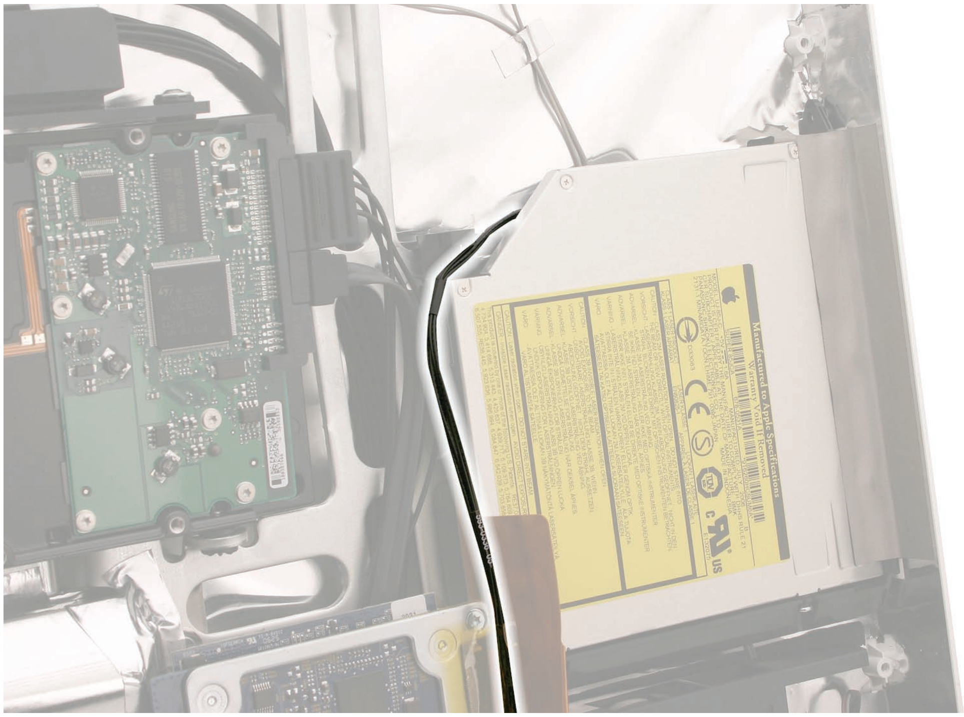


2. Disconnect the cable from the sensor on the top edge of the optical drive.



Replacing the Optical Sensor Cable

1. Replace the optical sensor cable.



2. Replace the display panel.
3. Replace the front bezel.
4. Replace the memory access door.

Optical Drive

Tools

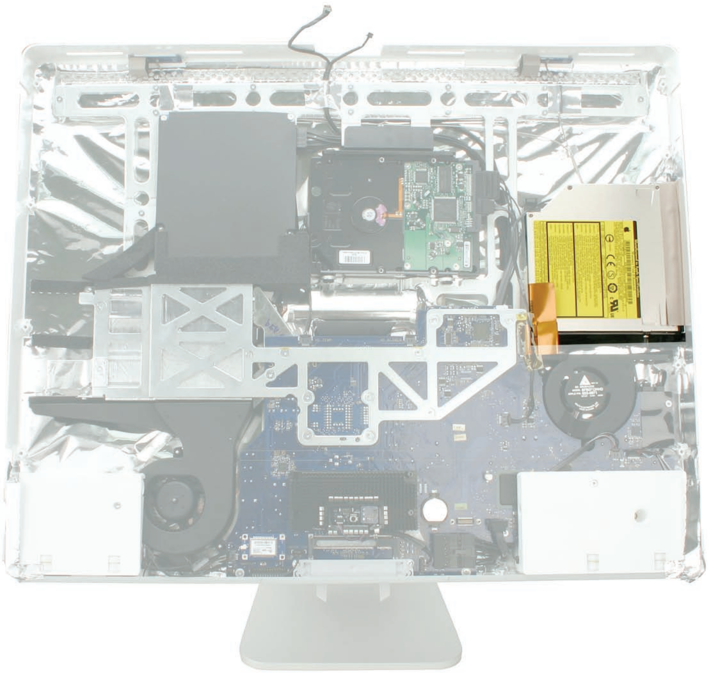
- Torx T10 screwdriver
- Torx T6 screwdriver
- Flat-blade screwdriver

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel

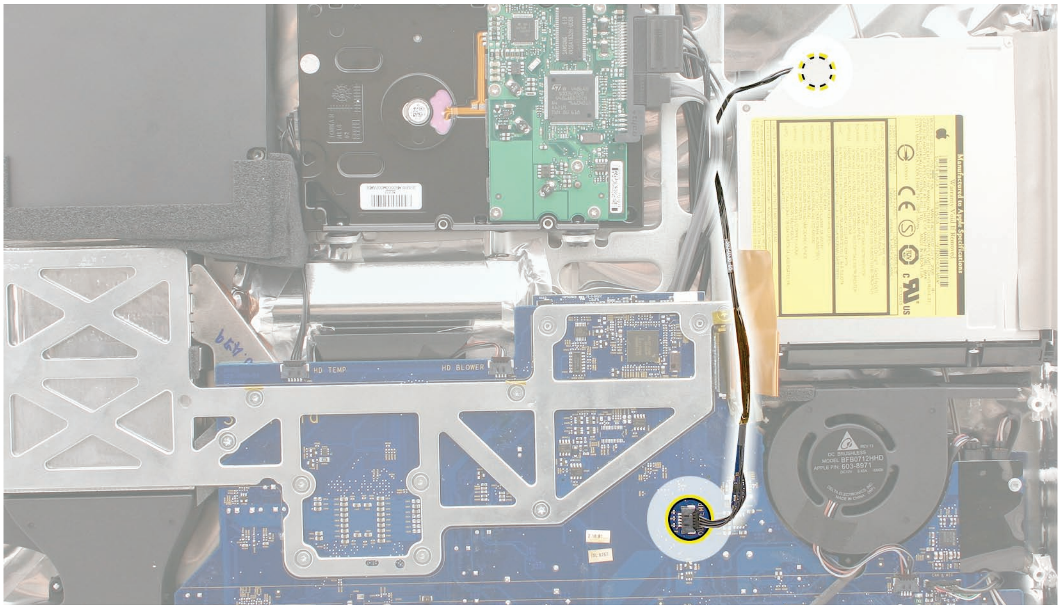
Part Location



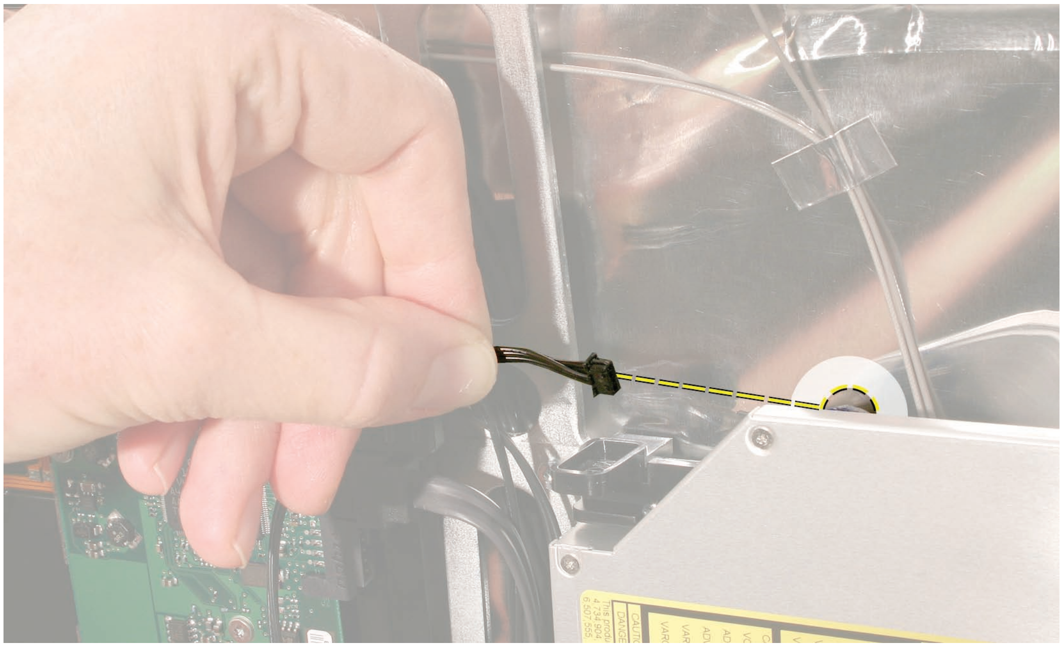
Removing the Optical Drive

Warning: When servicing the optical drive, handle it by the edges only. Pressing elsewhere on the drive could damage its internal mechanism.

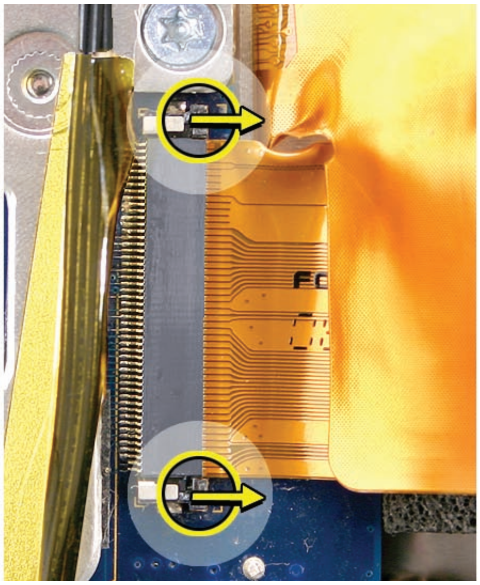
1. Note the sensor cable routing. Disconnect the temperature sensor cable from its connector near the optical fan on the logic board.

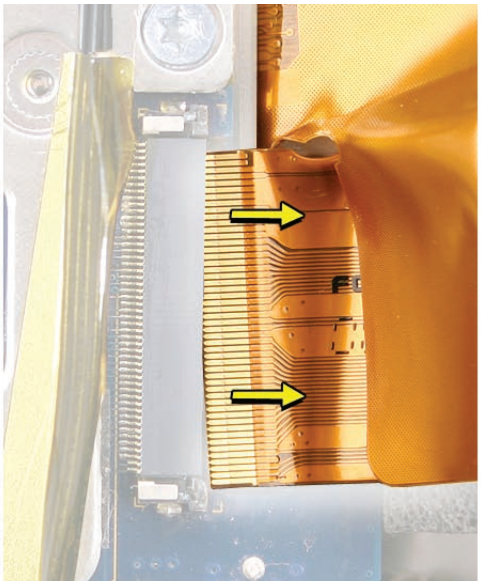


2. Disconnect the cable from the sensor on the top edge of the optical drive.

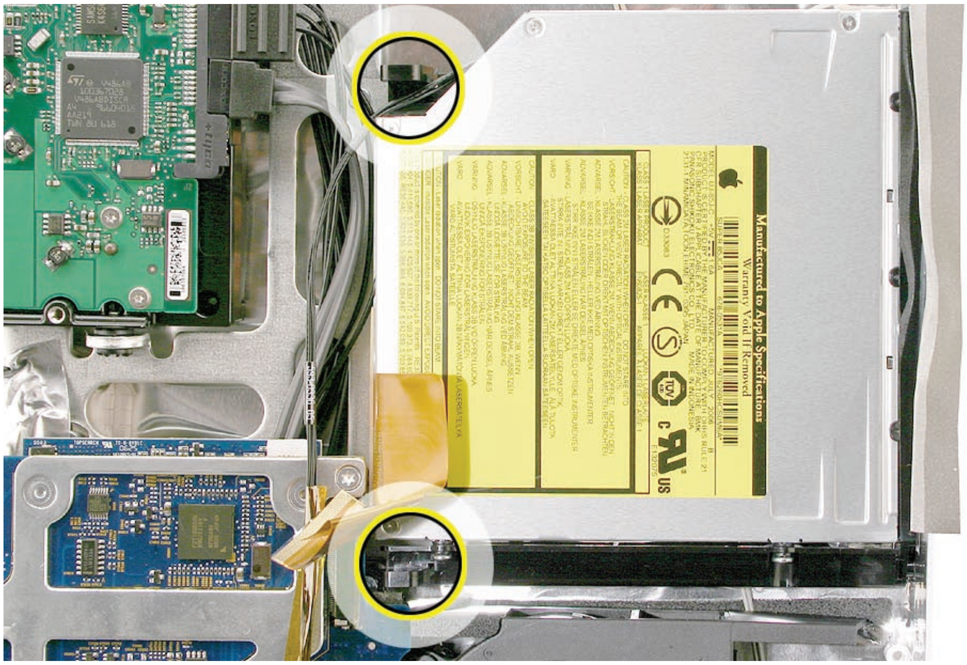


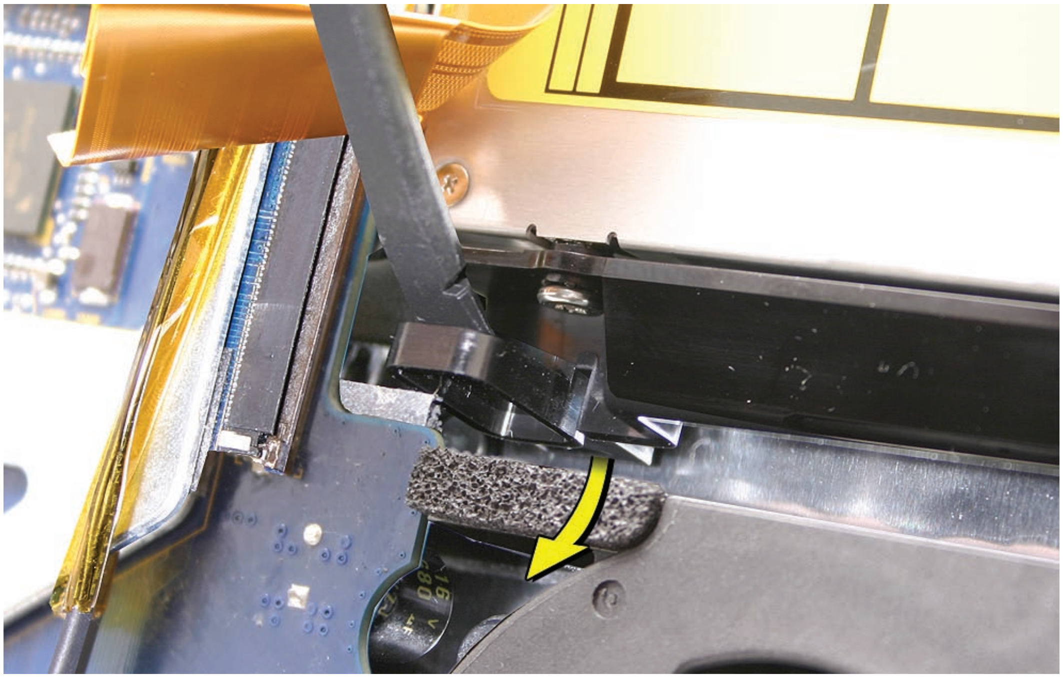
3. Peel up the tape from the flex cable, and note the routing of the sensor cable beside the flex cable. Use a black stick to push out on the two cable locks on the logic board, then pull the flex cable toward the drive to disconnect the flex cable from the logic board.



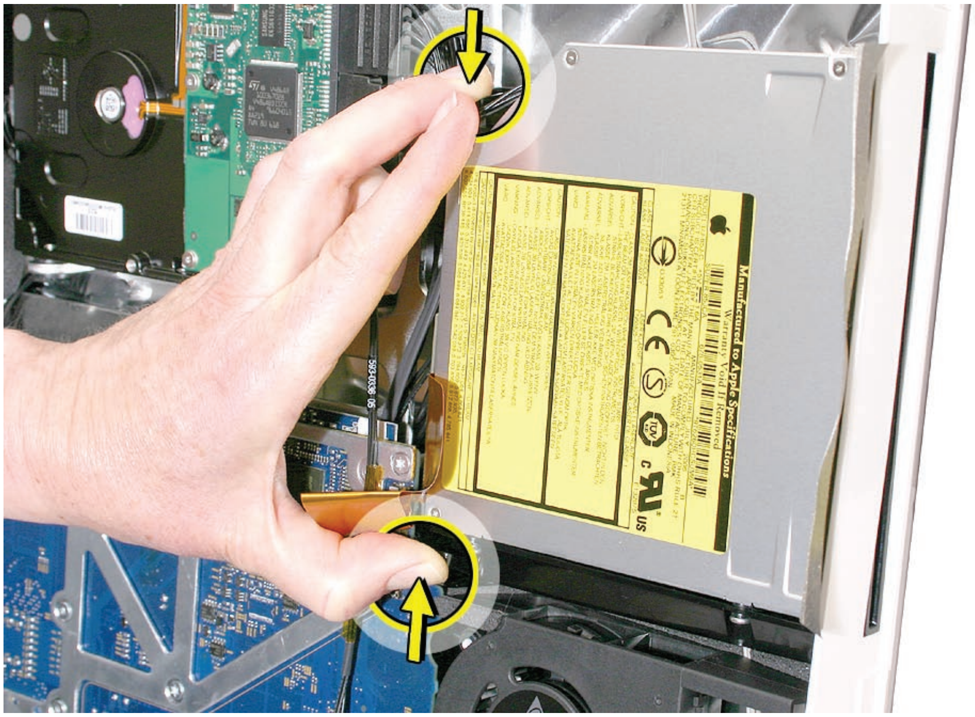


4. Locate the two black release levers on the mounting bracket. Using a black stick, as shown, press straight down at the base of the release lever while pushing the release lever toward the center of the drive. Pressing down unhooks the lever from the chassis. Repeat the process to unhook the other release lever.

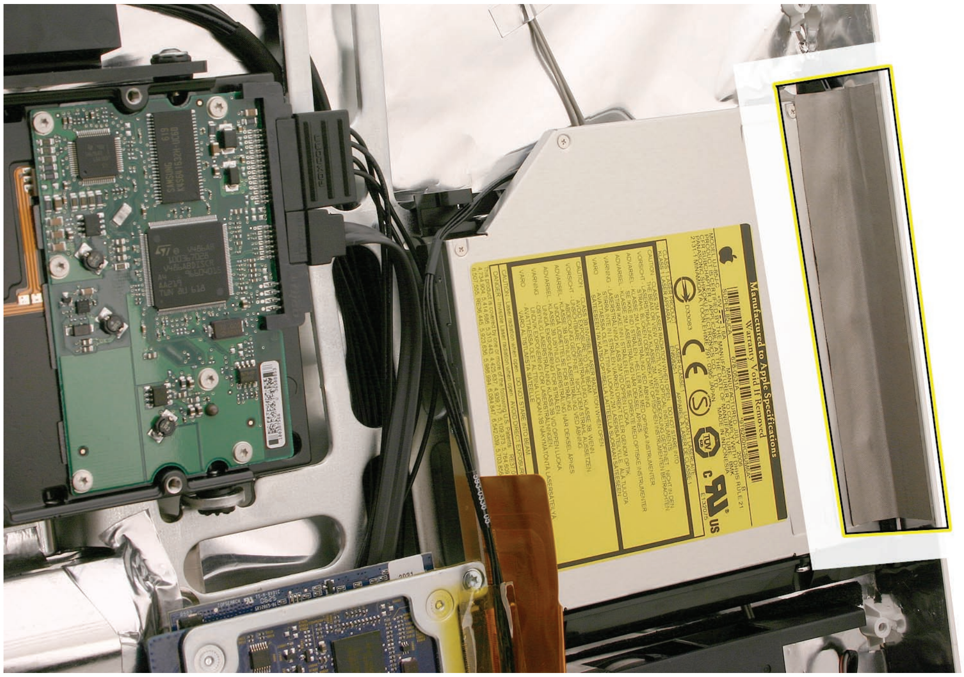

Manufactured to Apple Specifications
Warranty Void If Removed



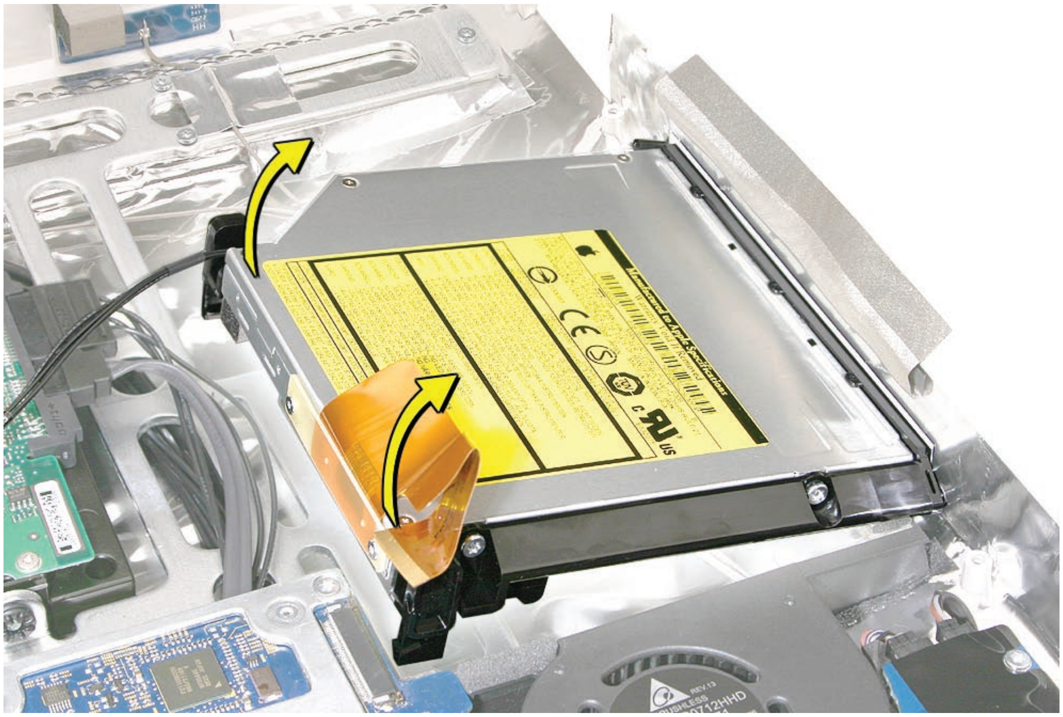
5. Squeeze the clips toward each other to unhook the drive from the chassis.



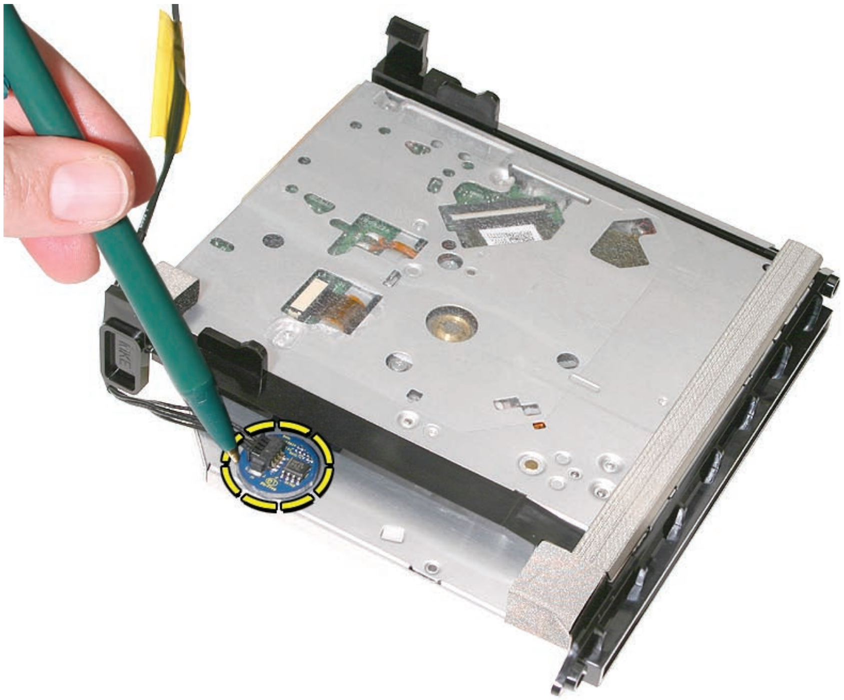
6. Peel back the strip of EMI mesh tape that anchors the bezel end of the drive to the rear cover.



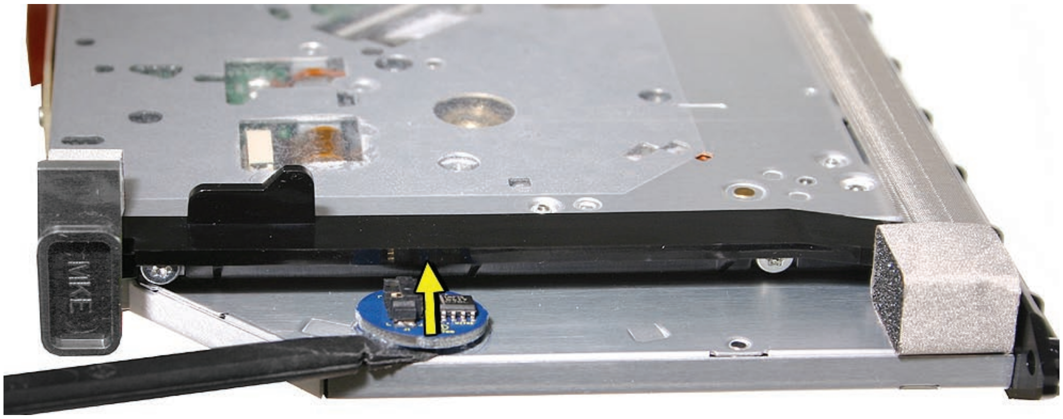
7. Tilt up the optical drive, and lift it out of the computer assembly.



8. Replacement Note: Check the position of the temperature sensor. If you will be transferring it to a replacement drive, use a permanent ink marker to draw an outline of the sensor location. Refer to that marking when placing the sensor on a new optical drive.

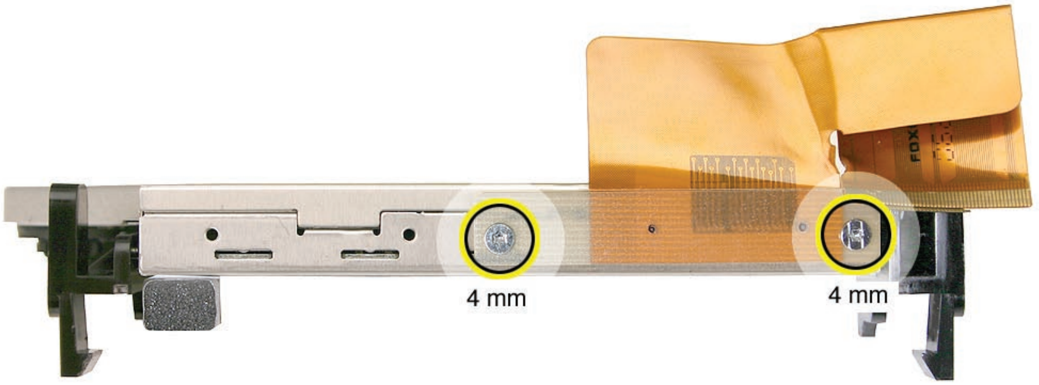


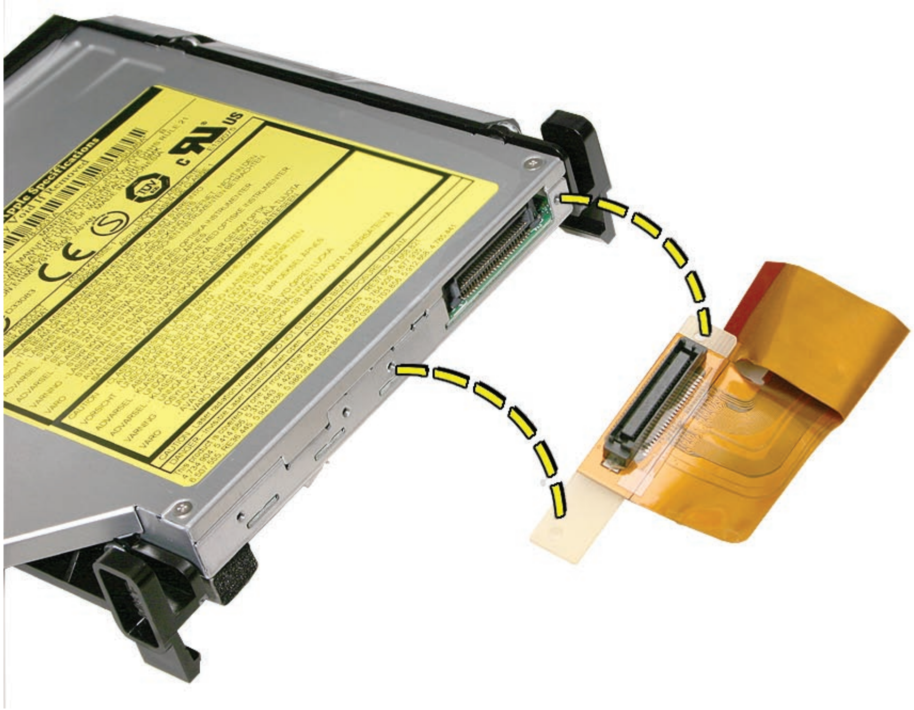
9. Use a black stick to peel up the temperature sensor from the adhesive on the bottom of the drive.



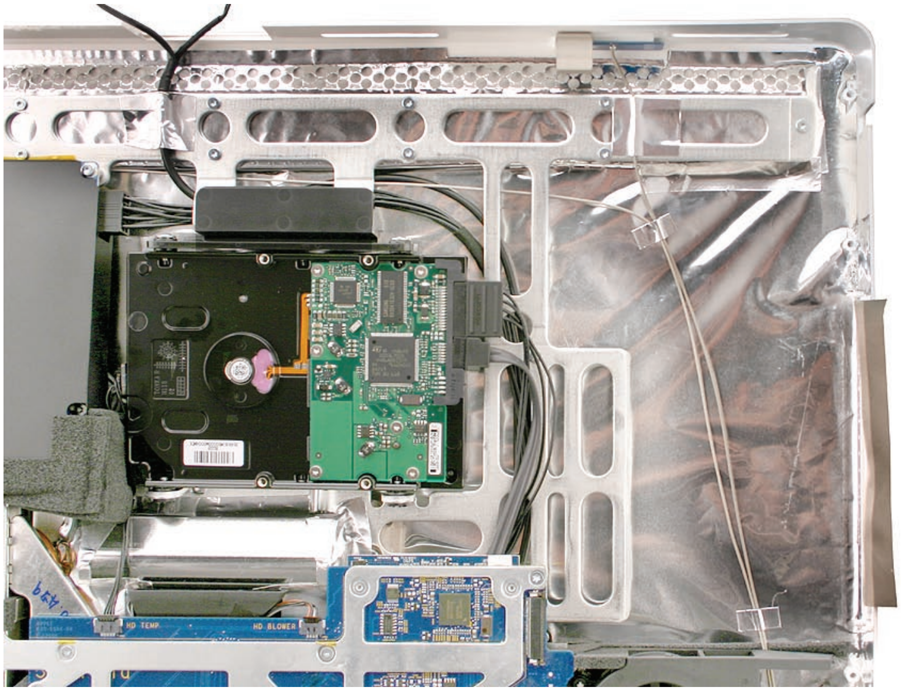
10. If you are replacing the optical drive, transfer the flex cable (two 4-mm long T6 shoulder screws) and sensor to the replacement drive. The replacement drive includes the plastic mounting brackets, slot-load bezel, and gaskets.

922-7817



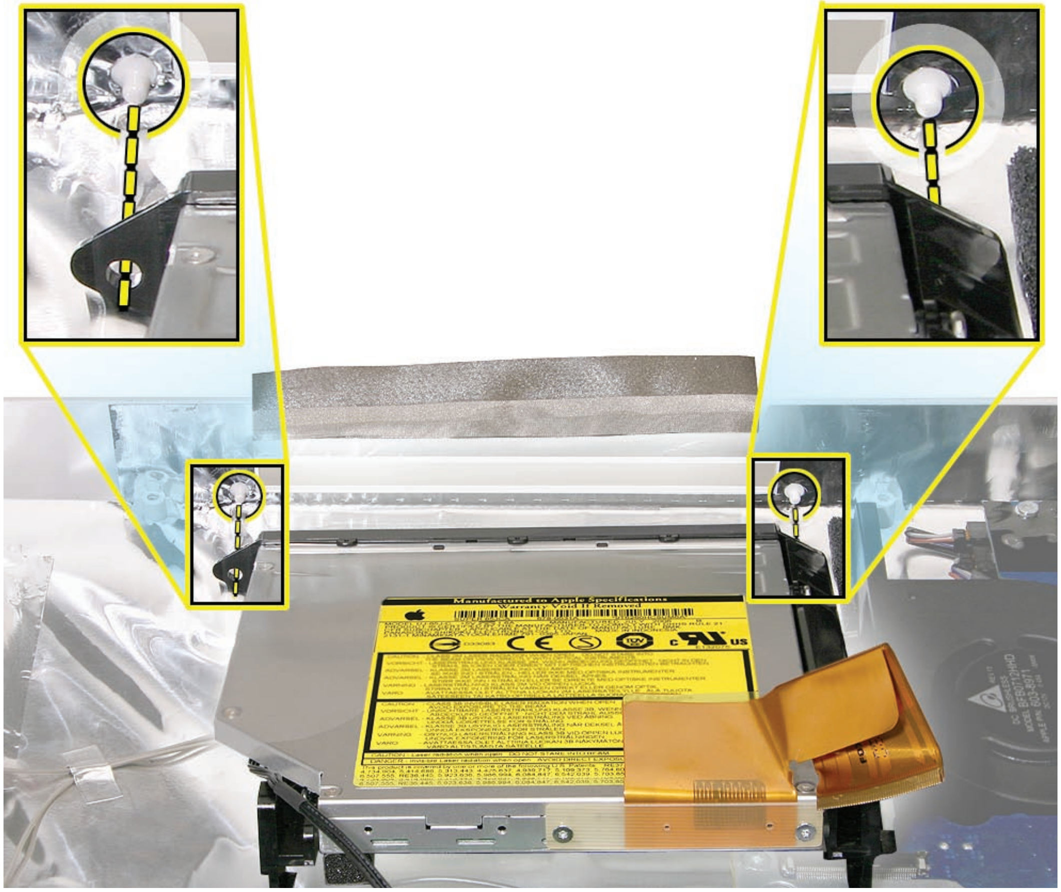


11. Before installing the optical drive, make sure the cables on the right side of the rear cover are routed as shown.



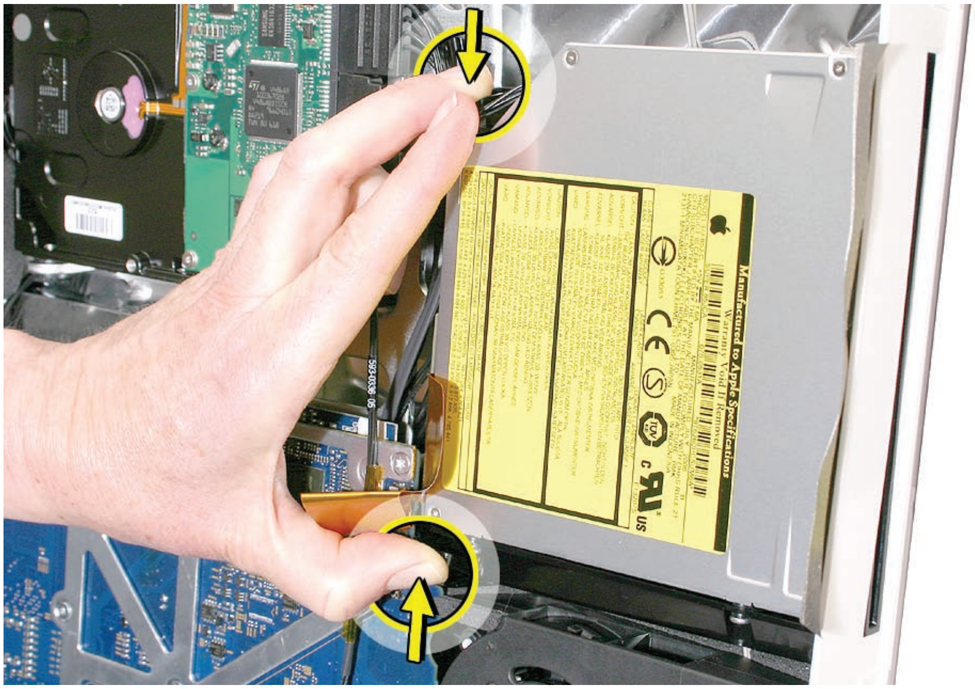
Replacing the Optical Drive

1. Install the flex cable onto the optical drive with two T6 screws.
2. Connect the optical sensor cable to the drive.
3. Insert the optical drive bezel into the rear housing, lining up the bezel with the slot opening. Be sure to align the two guide holes in the slot-load bezel with the guide posts at each end of the rear cover slot.
   Replacement Note: Make sure the EMI mesh tape does not cover any of the slot-load opening on the rear cover as you replace the optical drive into the computer assembly.



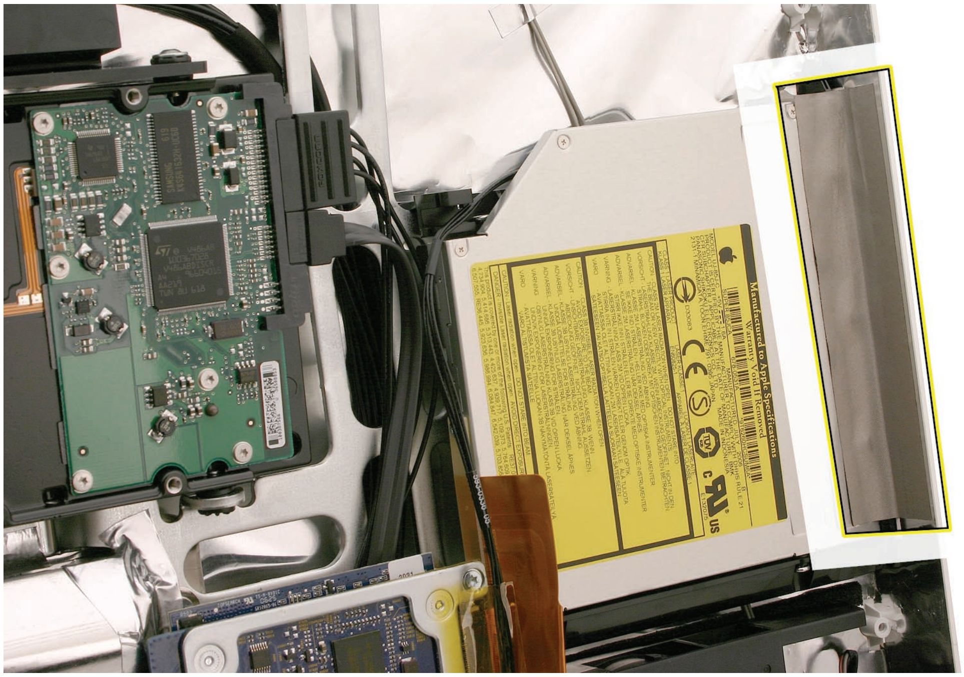
4. Push down on the mounting brackets clips to lock the optical drive securely into place on the chassis.

   Caution: Never press down on or grasp the body of the optical drive when installing it. Pressing or squeezing the body of the optical drive could damage the drive mechanism.



5. Connect the flex cable to the logic board
6. Connect the optical sensor cable to the logic board.

7. Reattach the strip of mesh EMI tape over the optical drive near the slot end of the drive.



8. Replace the display panel.
9. Replace the front bezel.
10. Replace the access door.

Optical Temperature Sensor

Tools

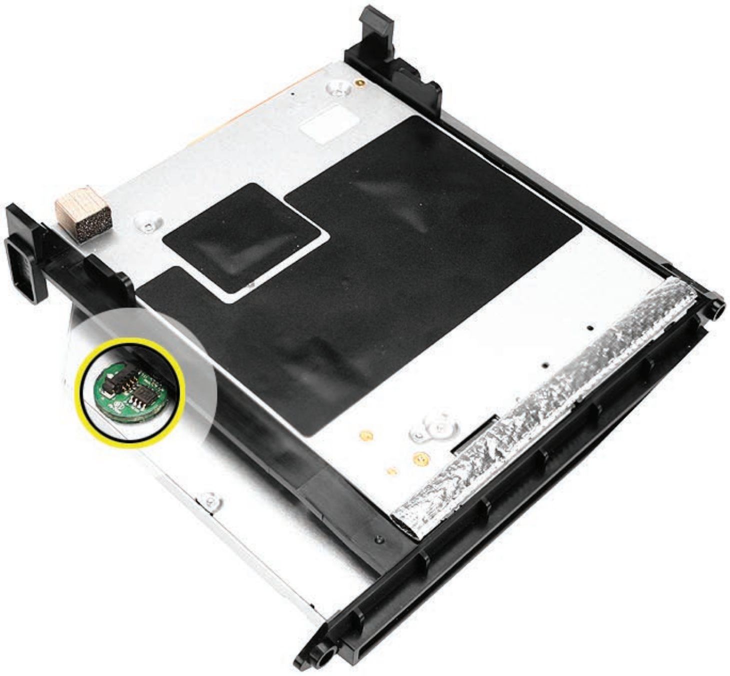
- Torx T10 screwdriver
- Permanent ink felt-tip pen

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel
- Optical drive

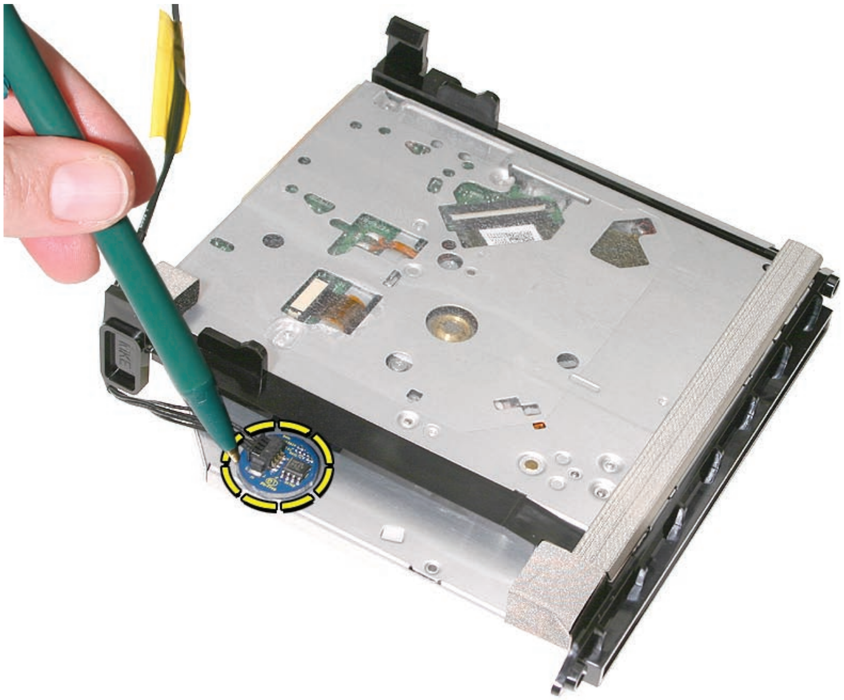
Part Location



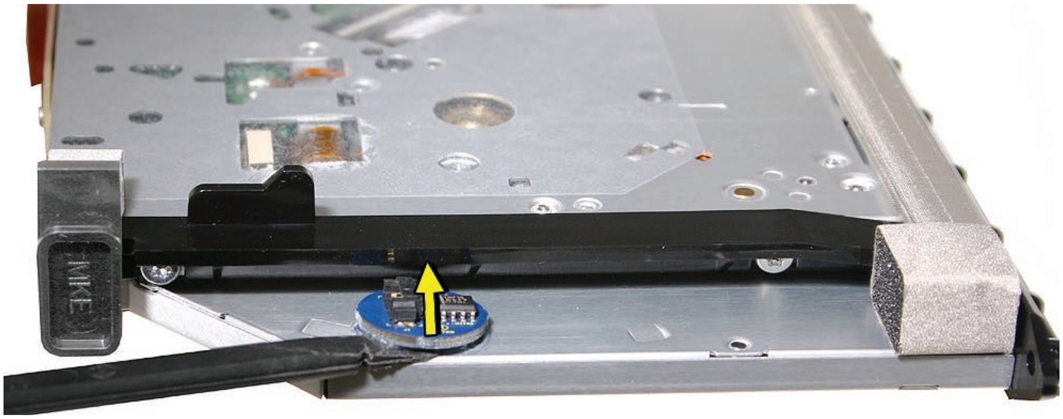
Removing the Optical Temperature Sensor

Warning: Handle the optical drive at the side edges only. Do not touch or press anywhere else on the drive.

1. With the optical drive removed, check the position of the temperature sensor. Use a permanent ink marker to draw an outline of the sensor location. Refer to that marking when placing the sensor on a new optical drive.

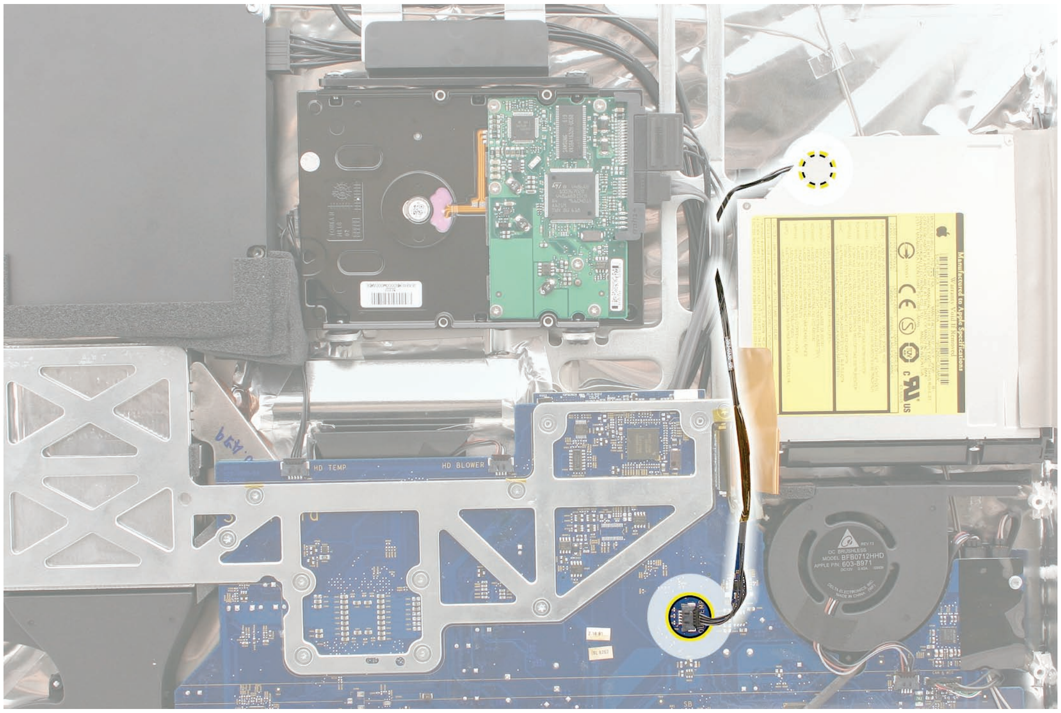


2. Use a black stick to peel up the temperature sensor from the adhesive on the bottom of the drive.



Replacing the Optical Temperature Sensor

1. Place the replacement temperature sensor onto the optical drive. Make sure that the cable connector is positioned toward the cable.
2. Replace the optical drive.
3. Replace the optical sensor cable.



4. Replace the display panel.
5. Replace the front bezel.
6. Replace the memory access door.

AirPort Extreme Card

Tools

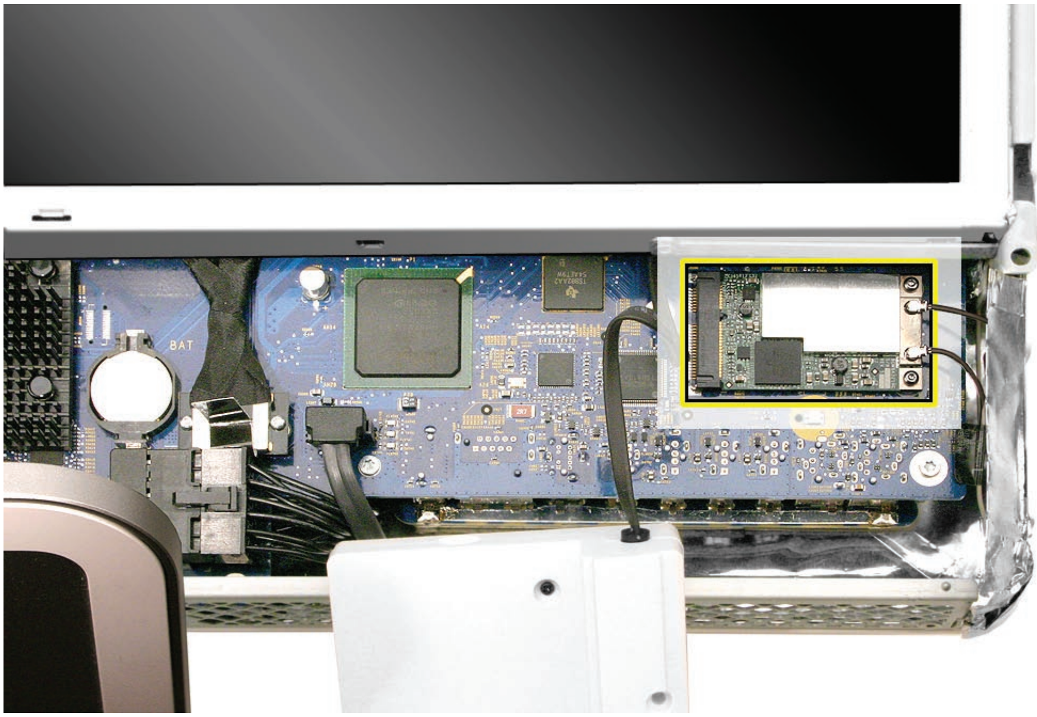
- Torx T6 screwdriver
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

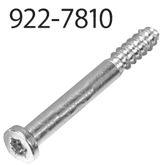
- Access door
- Front bezel

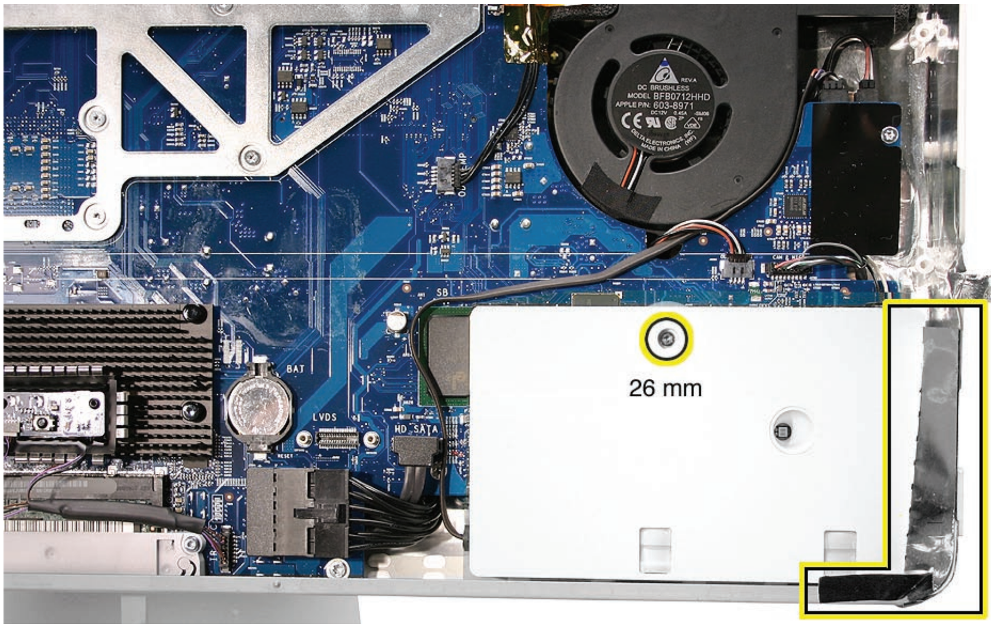
Part Location



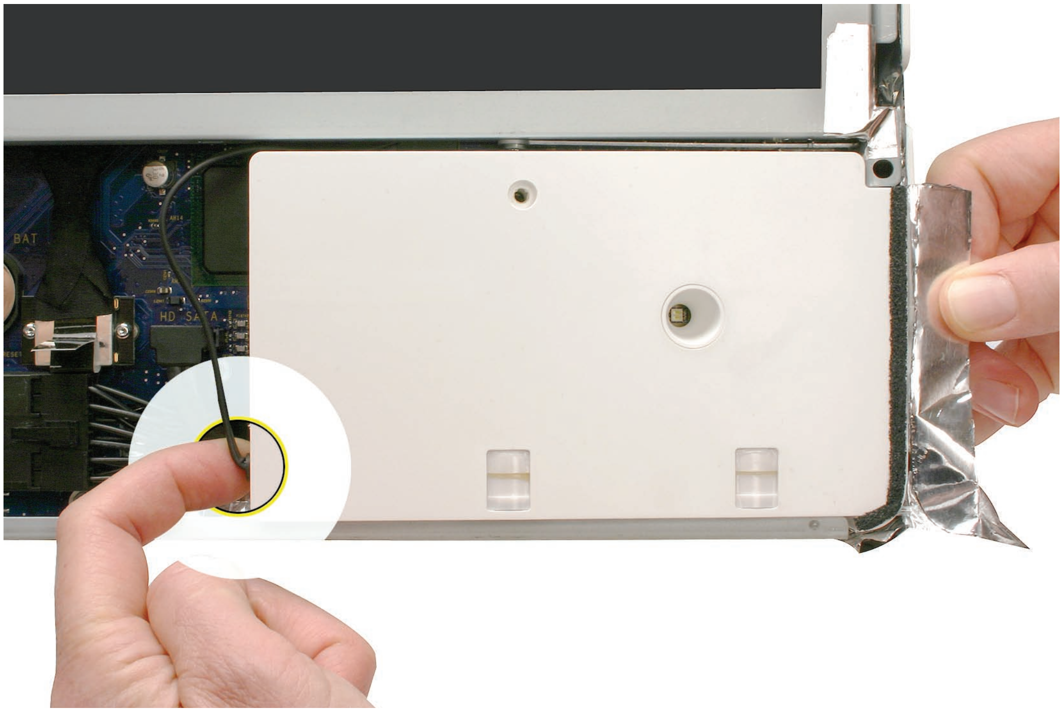
Removing the AirPort Extreme Card

1. Remove the 26-mm long screw from the right speaker, and peel up the EMI tape from the lower right corner of the speaker.



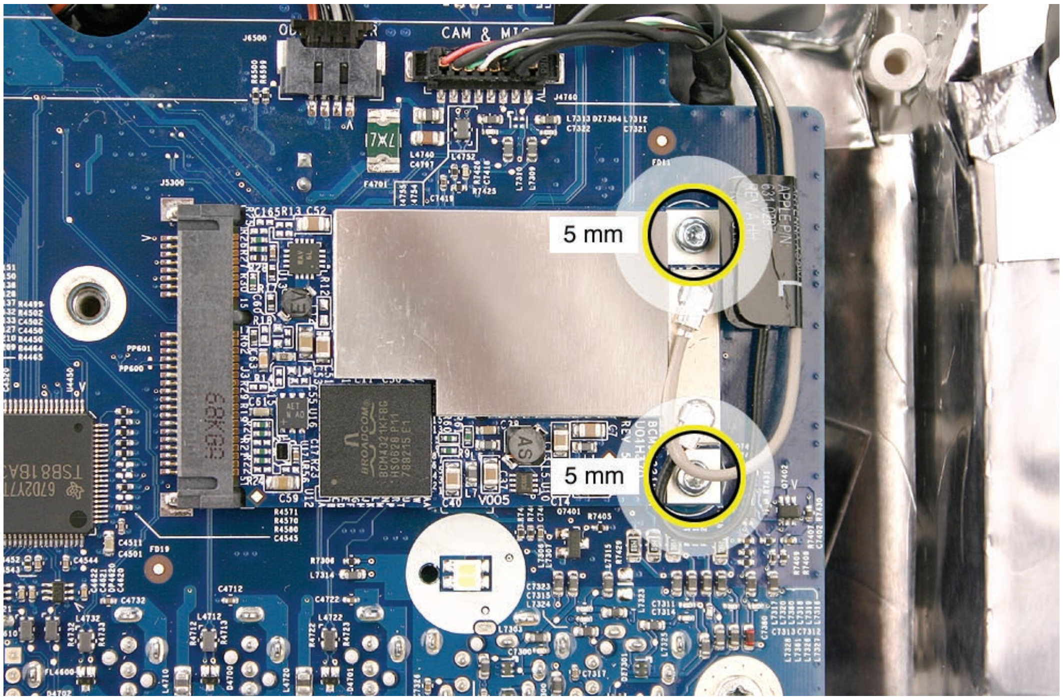


2. Without straining the speaker cable, pull up the speaker body and rest it on the table.

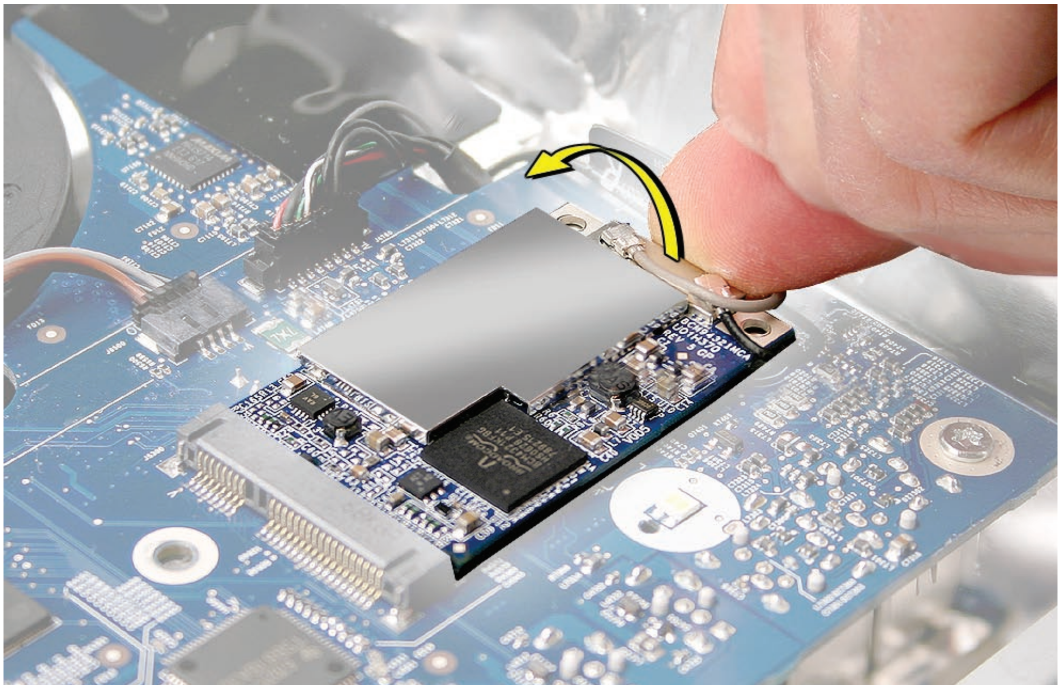


3. Using a T6 torx screwdriver, remove the two 5-mm long screws and disconnect the two antenna cables from the AirPort Extreme card.

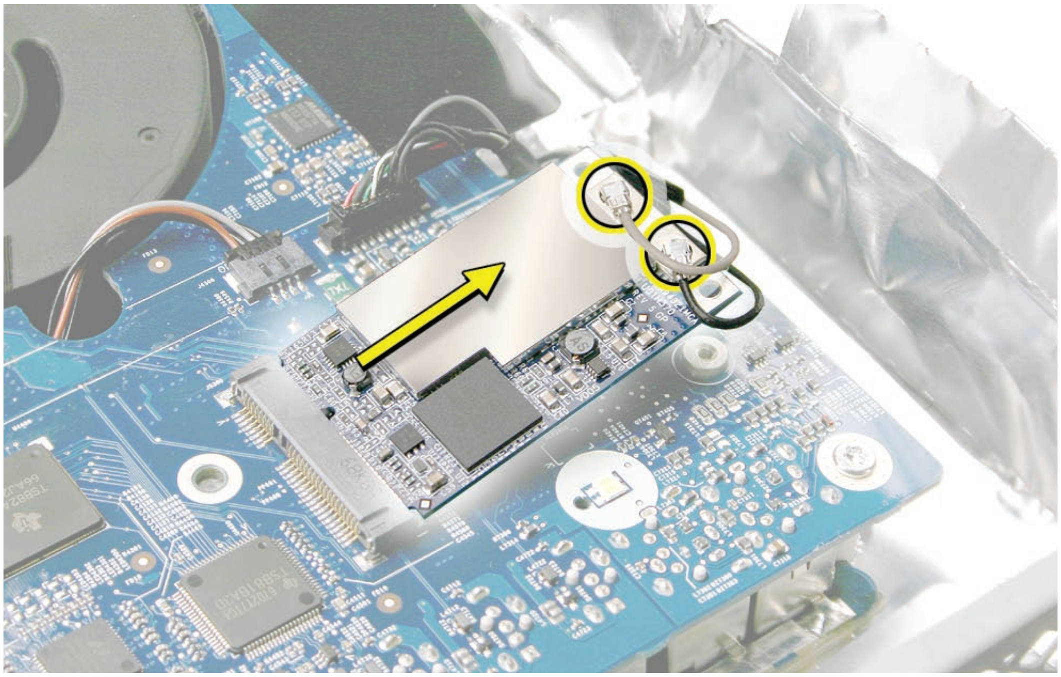
922-7010



4. If the card does not pop up when the screws are removed, use your thumb to gently tilt the card up.

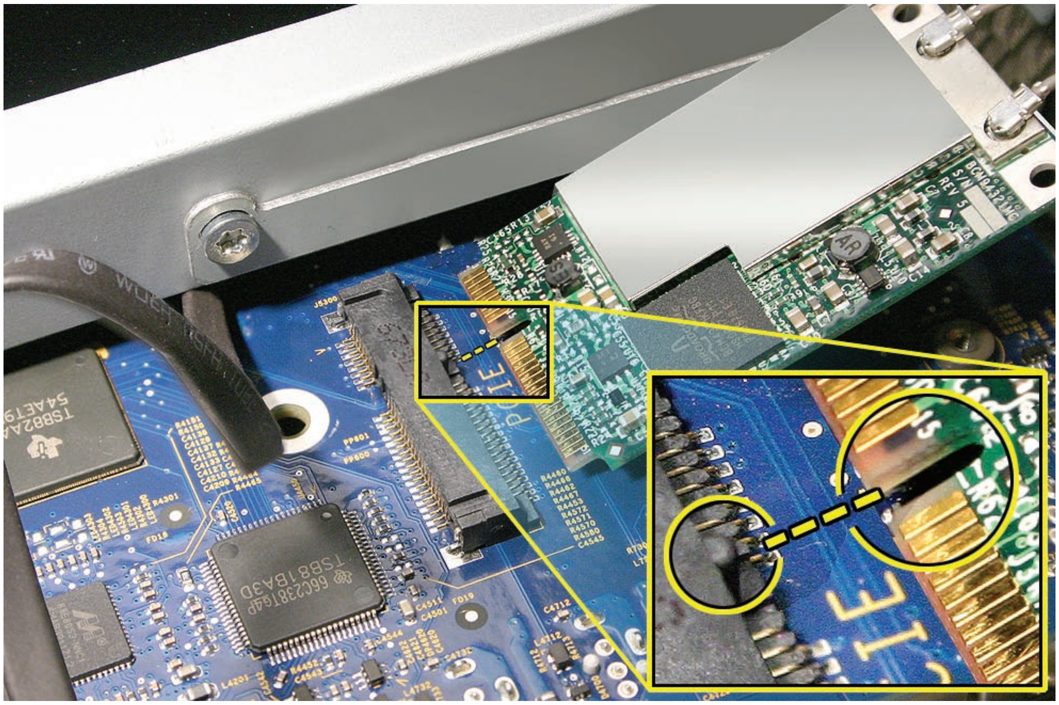


5. Holding the card by the edges, pull the AirPort Extreme card out of the slot, and disconnect the antenna cables.



Replacing the AirPort Extreme Card

1. Connect the antenna cables to the connectors on the AirPort Extreme card.
   Note: The antenna cables might include an "L" or "R" tab near the connector end; however, you can disregard that because the cable position can be swapped without any change in performance.
2. Align the AirPort Extreme card with the slot on the logic board. Insert the board into the slot.



3. Replace the two AirPort Extreme card screws.
4. Replace the right speaker.
5. Replace the front bezel.
6. Replace the access door.

Bluetooth Antenna Cable

Tools

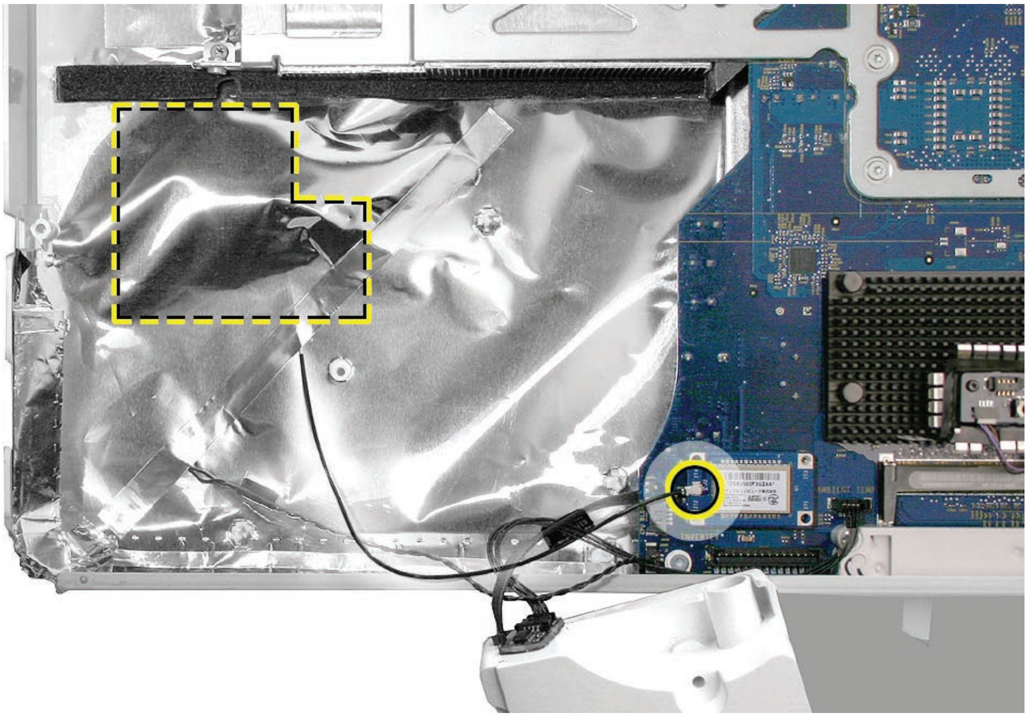
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, remove the following:

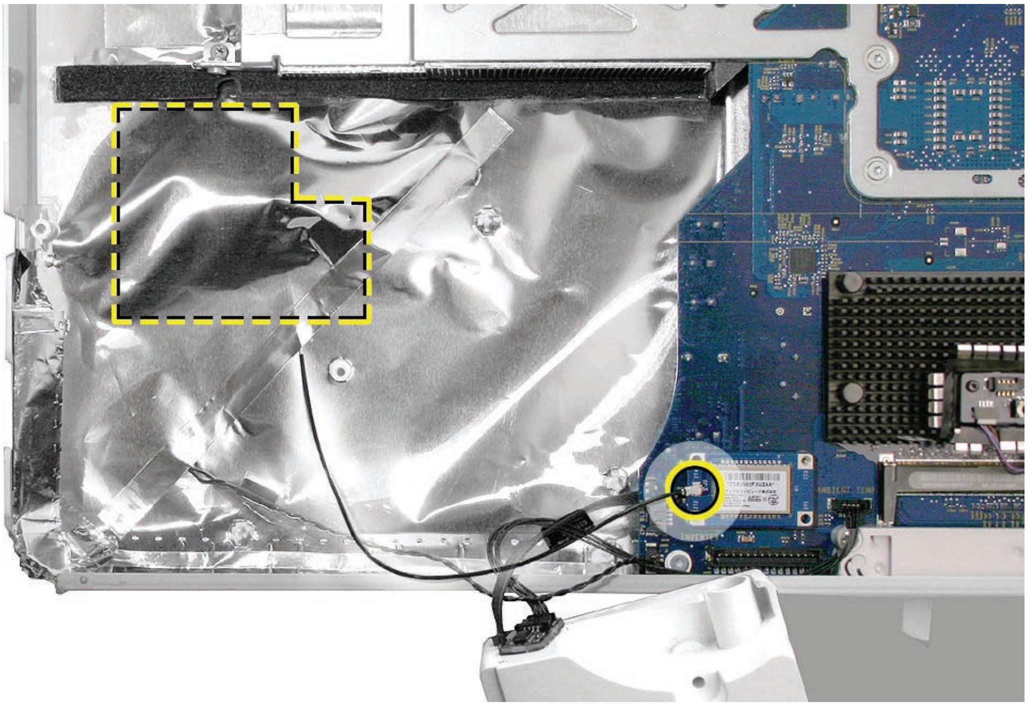
- Access door
- Front bezel
- LCD display panel
- CPU fan

Part Location

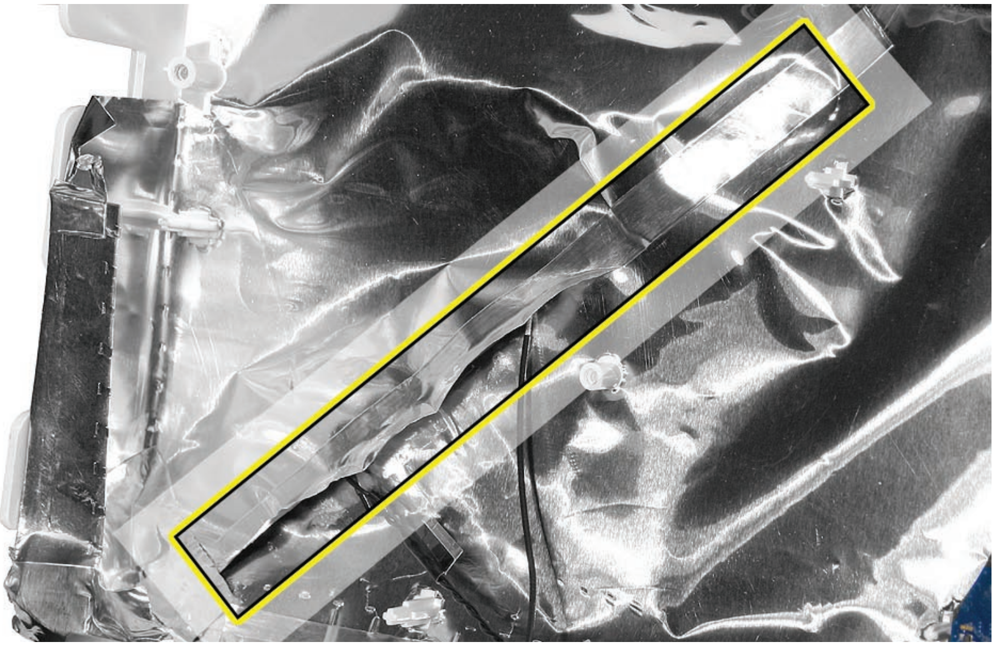


Removing the Bluetooth Antenna

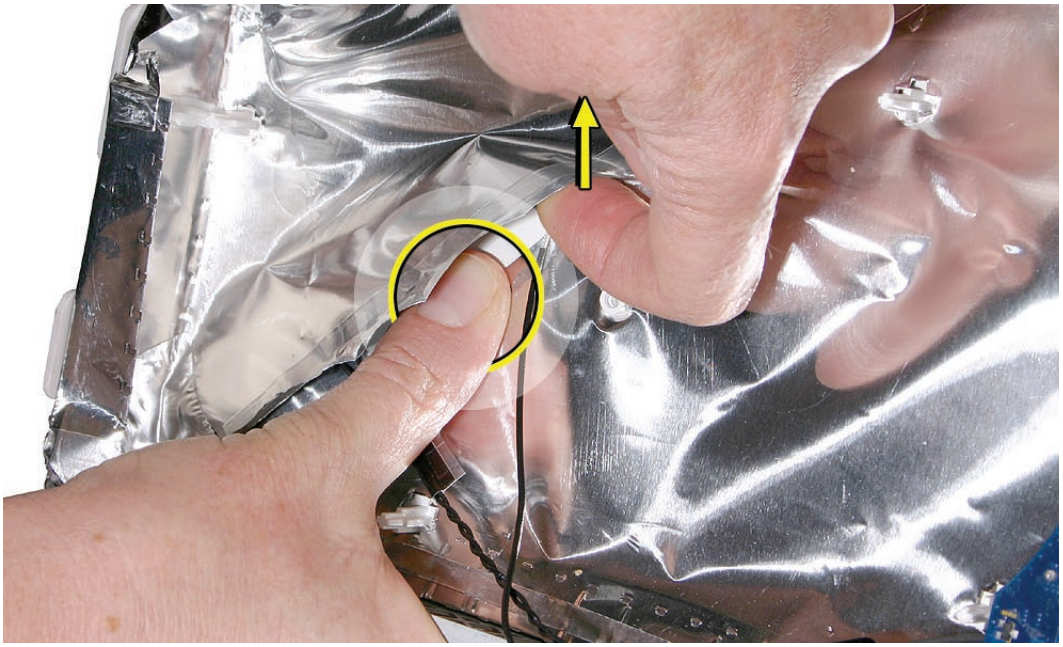
1. Note that only the cable end of the Bluetooth antenna is visible as it exits the EMI shielding.
2. Disconnect the antenna from the Bluetooth board.



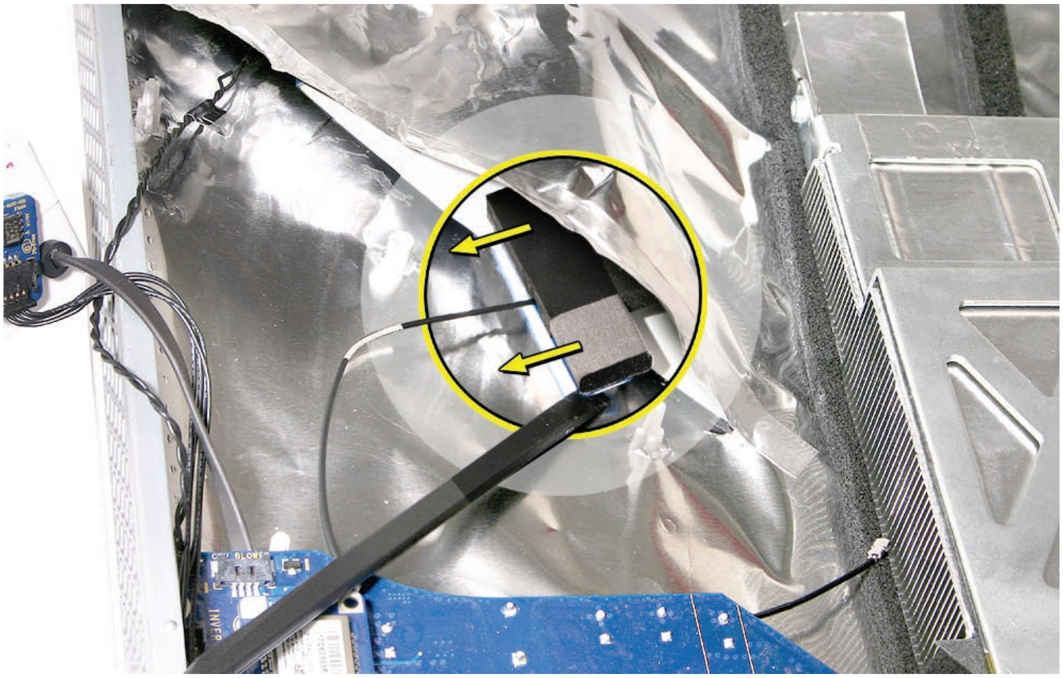
3. Carefully peel back the long strip of EMI tape from the lower left corner of the rear cover, as shown below.



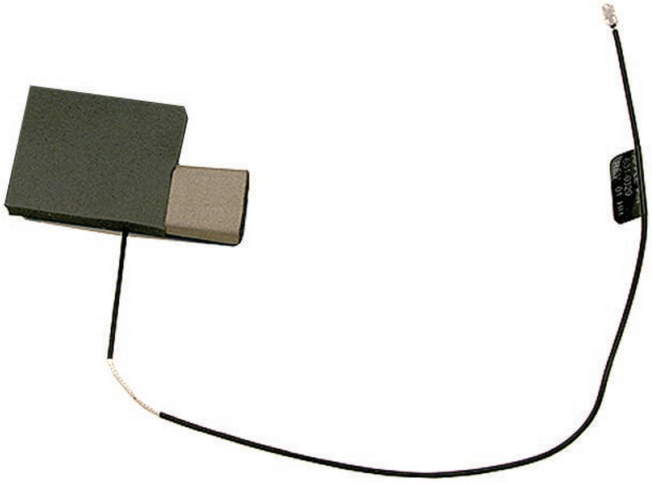
4. Open the "sleeve" of the EMI backing to access the rest of the antenna cable.



5. Use a black stick to pry up the rectangular end of the antenna from the rear housing. Pull the remaining antenna cable through the opening in the EMI sleeve.

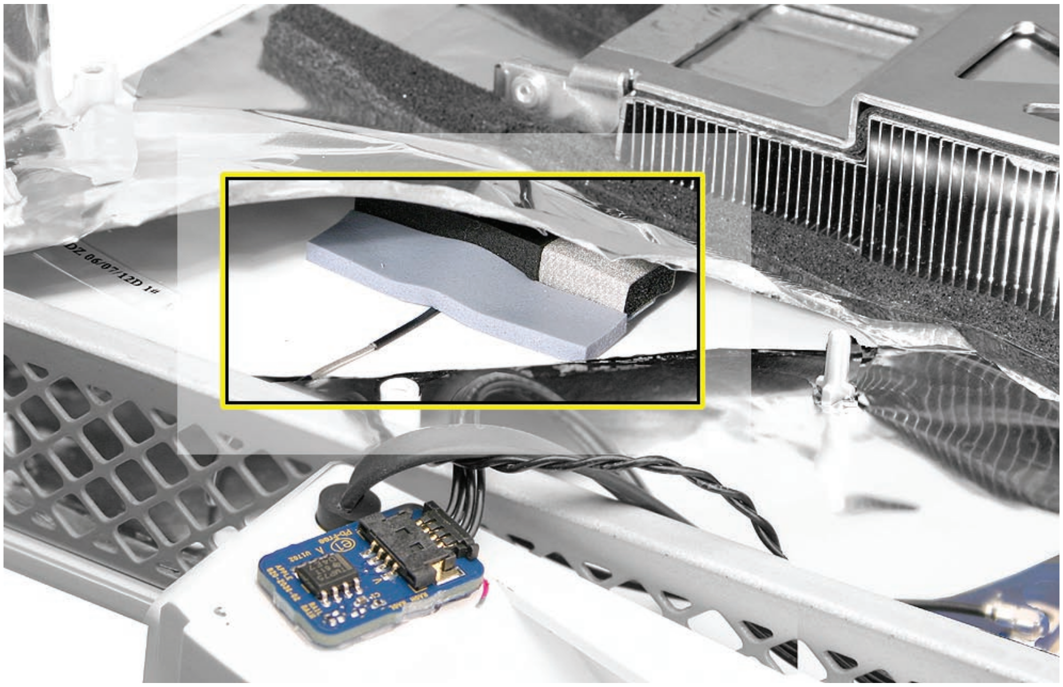


6. Remove the Bluetooth antenna from the rear cover.
   Note: The Bluetooth antenna includes the gasket material as shown.

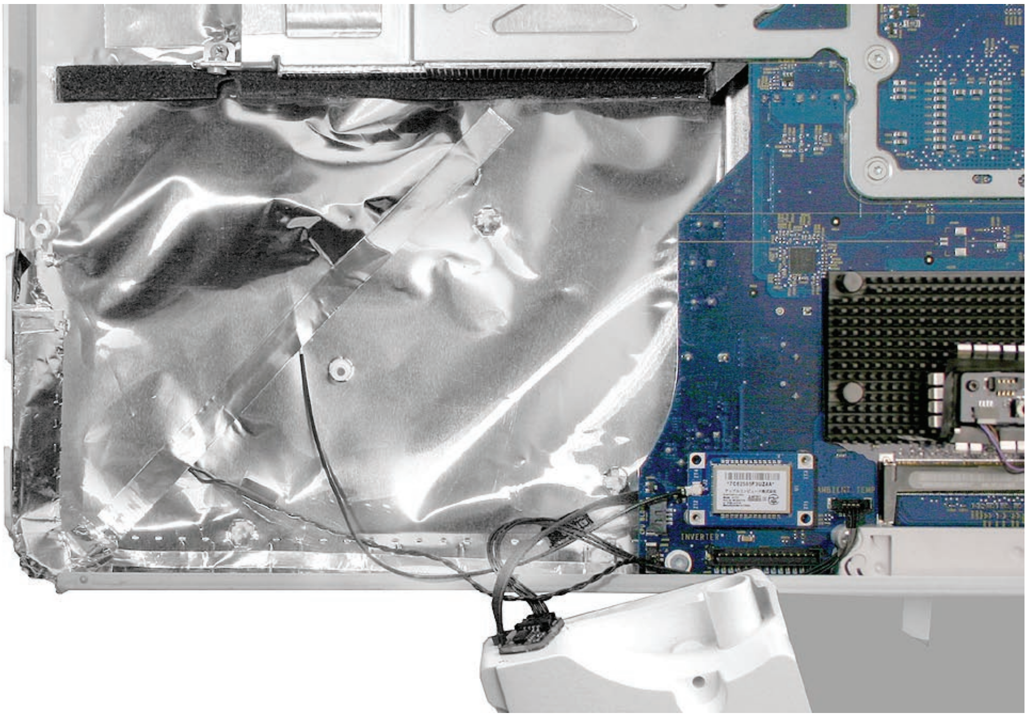


Replacing the Bluetooth Antenna

1. Press the sticky side of the antenna board to the housing until securely fastened.
2. Make sure the antenna cable runs under the gray foam material.



3. Close the EMI sleeve, and secure the opening with a strip of EMI tape.
4. Connect the Bluetooth antenna to the Bluetooth board.



5. Replace the CPU fan.
6. Replace the display panel.
7. Replace the front bezel.
8. Replace the access door.

Logic Board

Tools

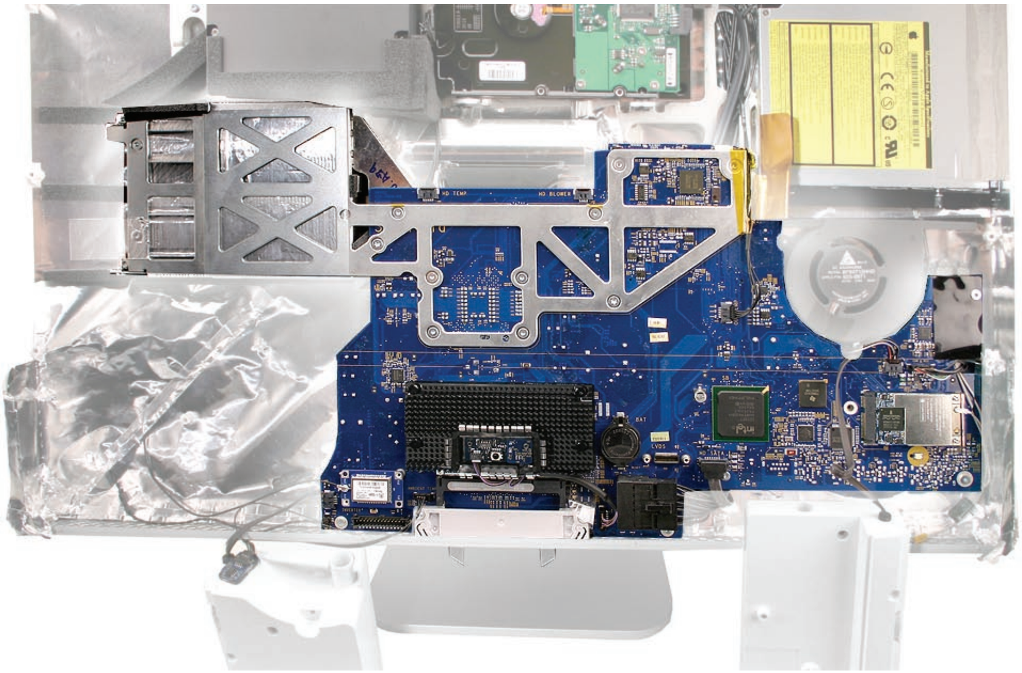
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

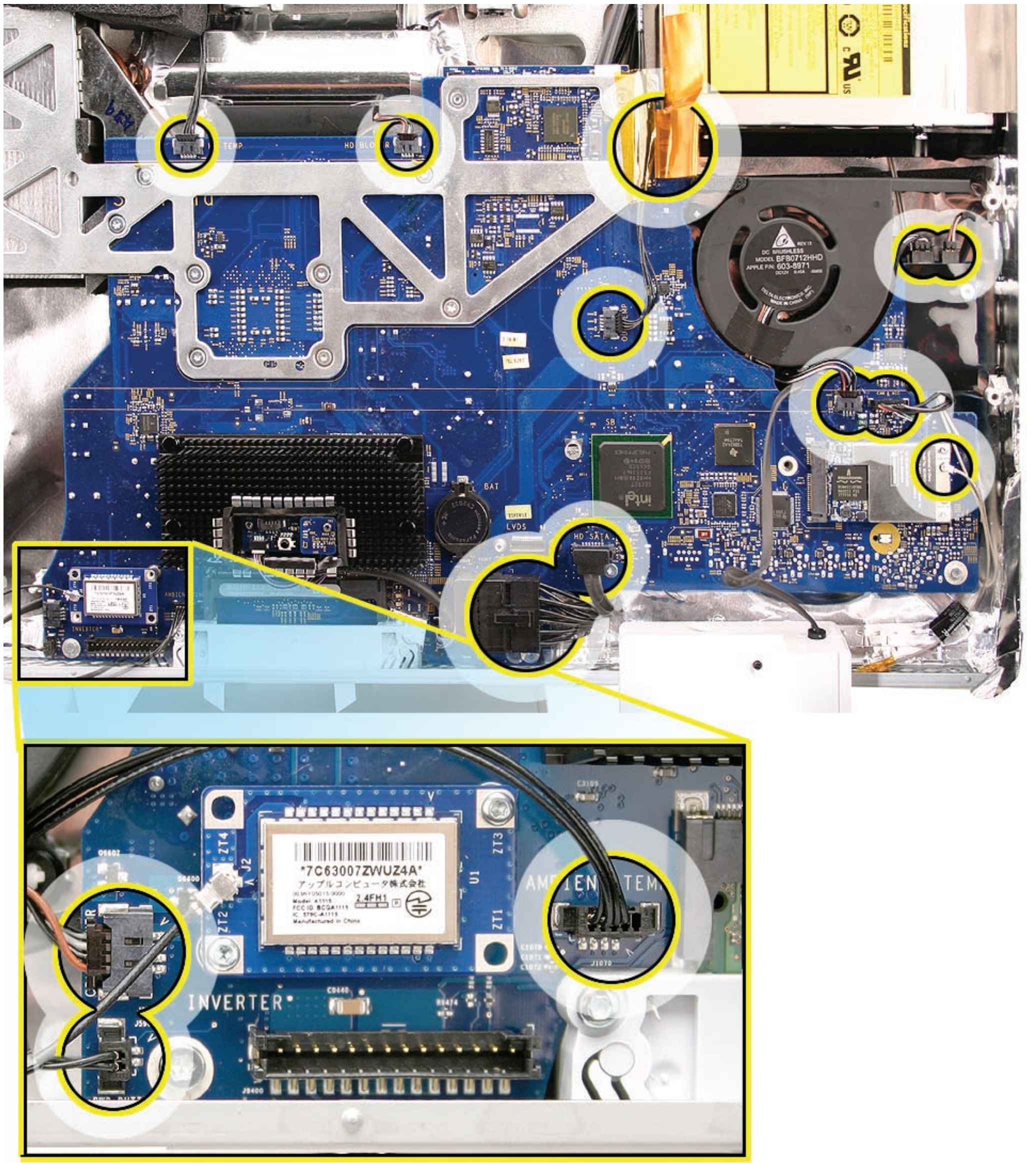
- Access door
- Front bezel
- LCD display panel
- Speaker, right

Part Location

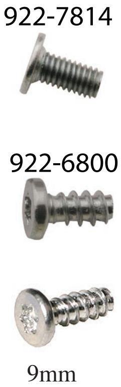


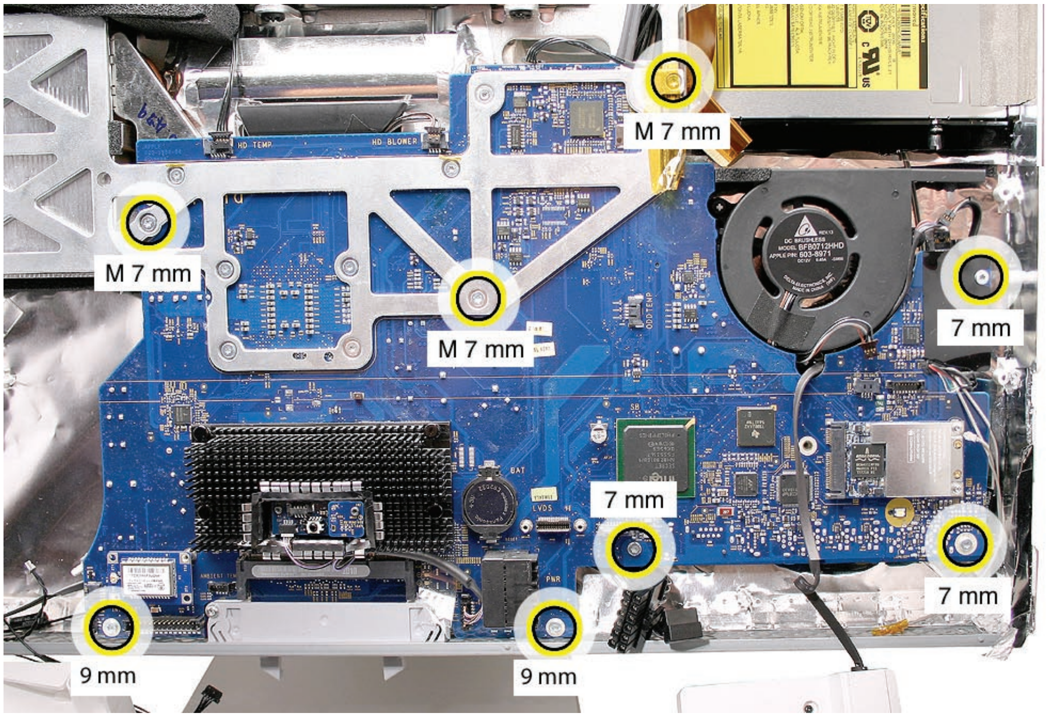
Removing the Logic Board

1. Disconnect all connectors from the logic board, including:
   - Hard drive temperature sensor and hard drive fan
   - Optical drive flex cable and optical drive temperature sensor
   - Speakers, right and left
   - Optical fan
   - Camera/microphone cable
   - AirPort antennas
   - Power supply and hard drive data cables
   - Ambient temperature sensor
   - Bluetooth antenna
   - CPU fan
   - Power button cable

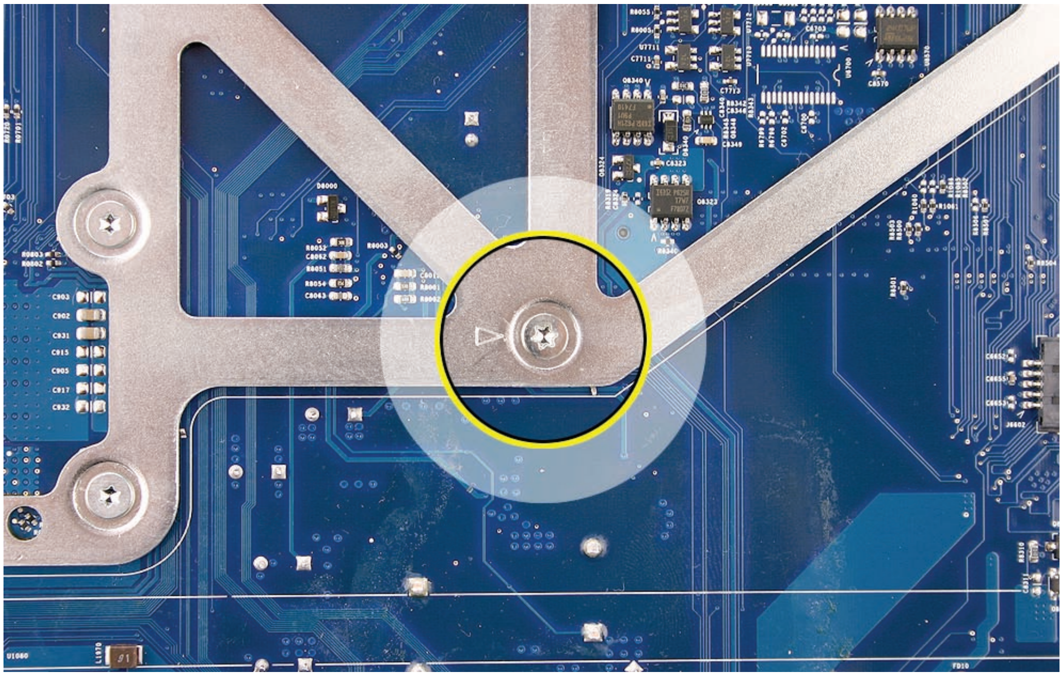


2. Remove the eight T10 screws from the logic board.


922-7814
922-6800
9mm

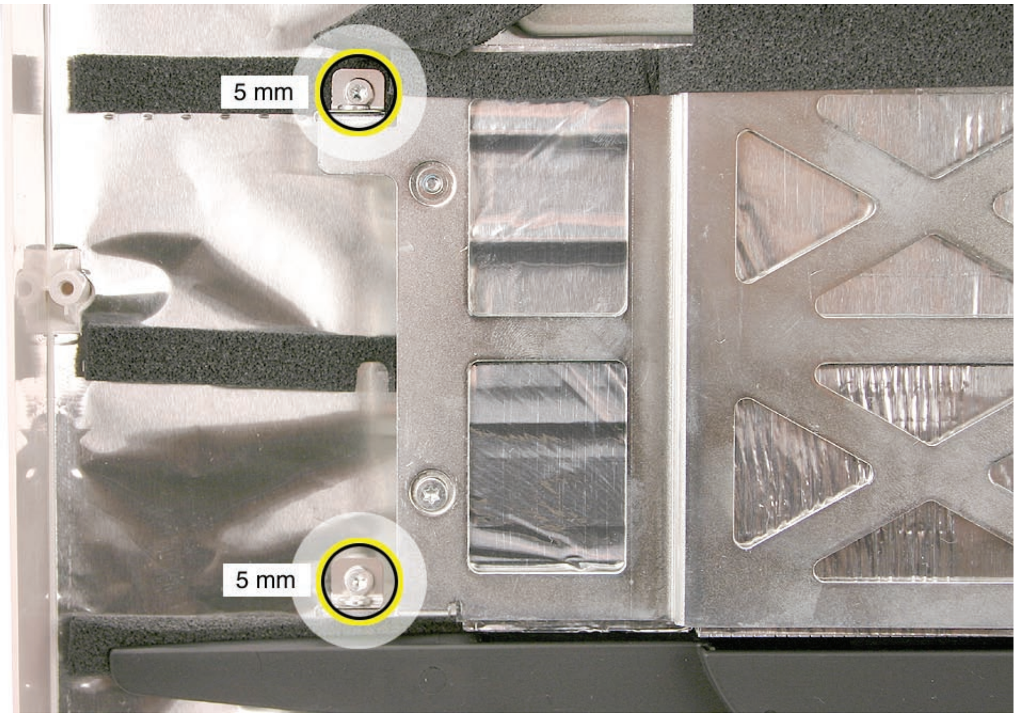

M 7 mm
M 7 mm
M 7 mm
7 mm
7 mm
7 mm
9 mm
9 mm

3. Note that the three machine screws on the backer plate have an arrow designation.

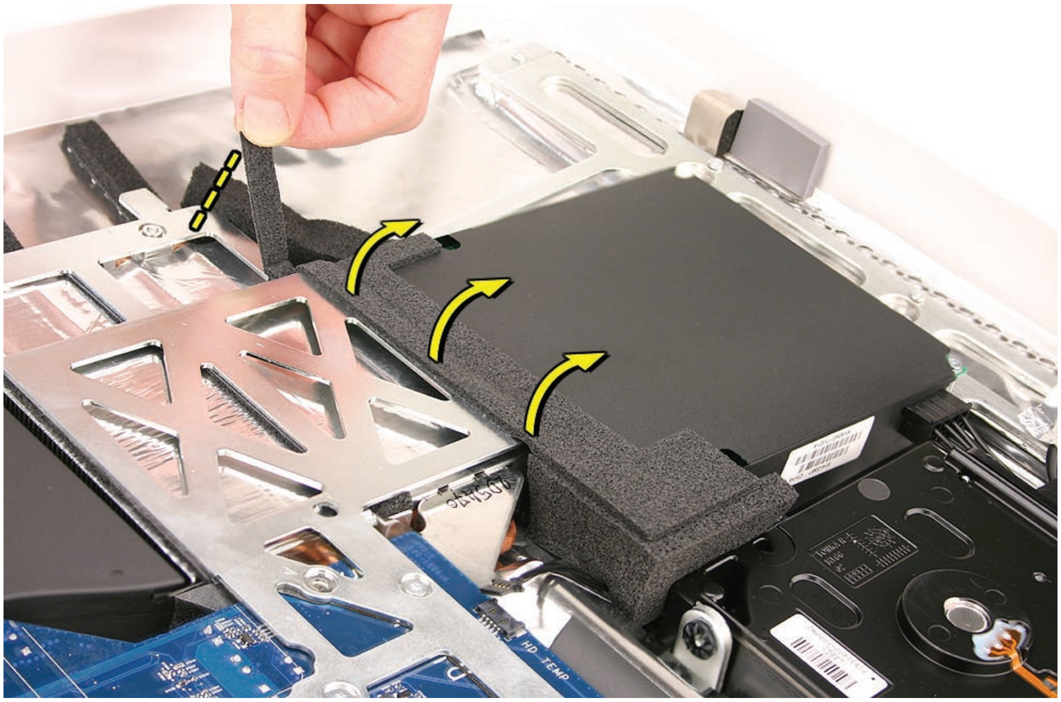


4. Remove the two screws at the support bracket.

922-7816

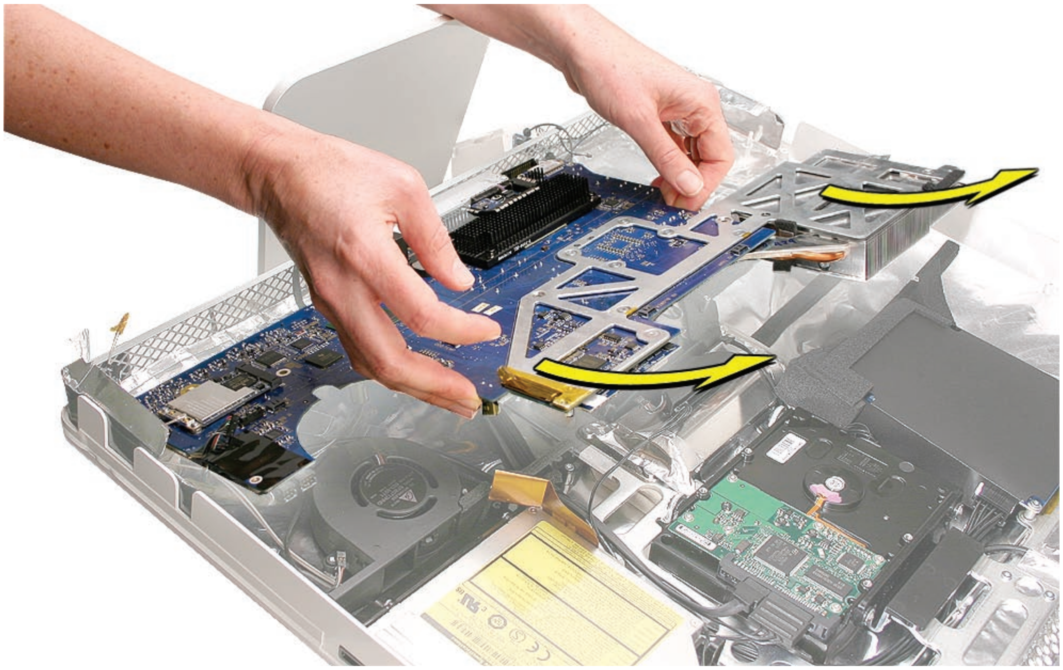


5. Peel up the power supply gasket material where it overlaps the backer plate.

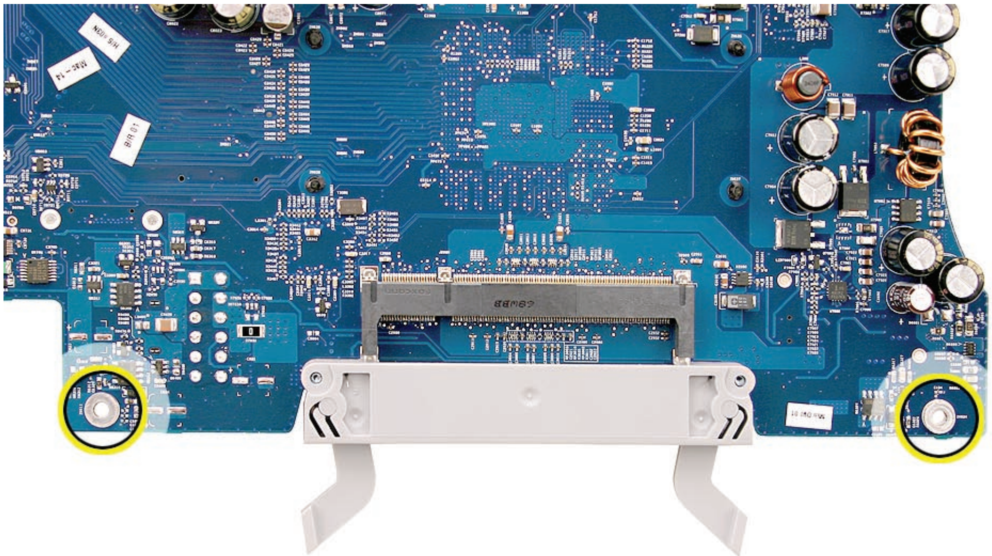


6. Tilt the logic board up and out—away from the memory card levers.

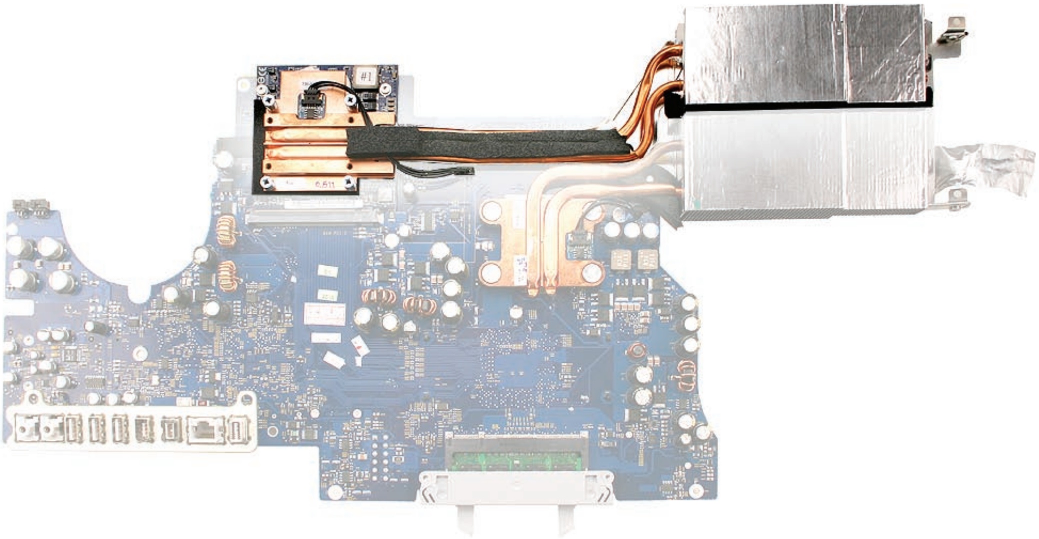
   Important: When handling the logic board, never handle the board by the heatsink or metal frame.



7. When the board is removed, check that the two washers on the processor side of the logic board did not fall off. .

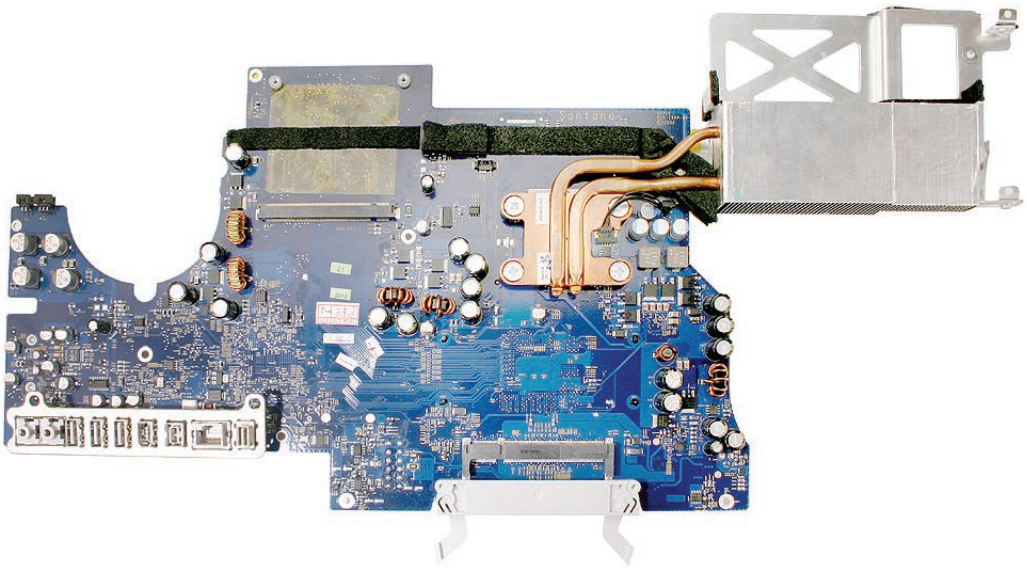


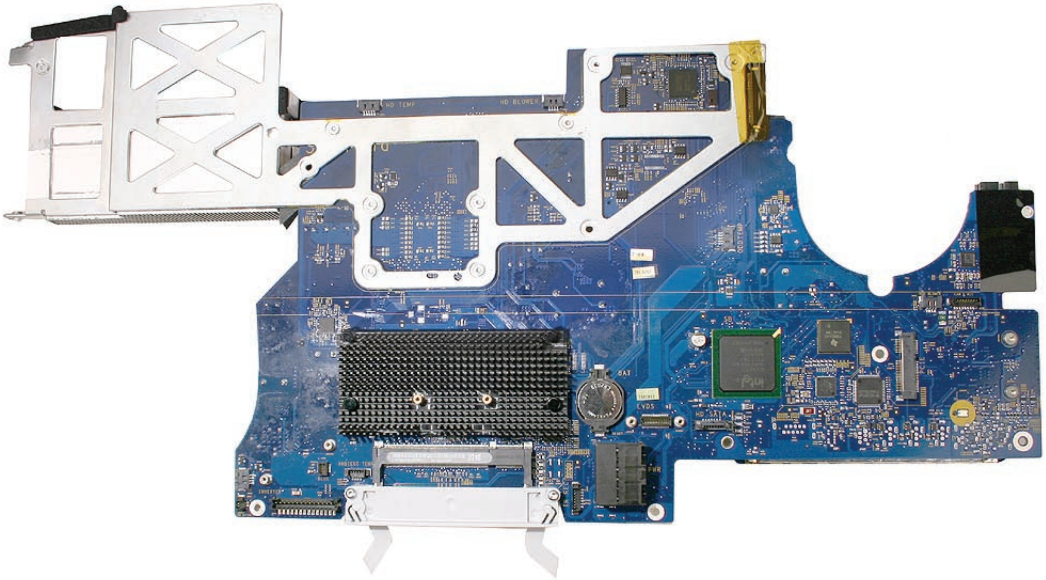
8. Remove the **video card** before returning the board to Apple.



Replacing the Logic Board

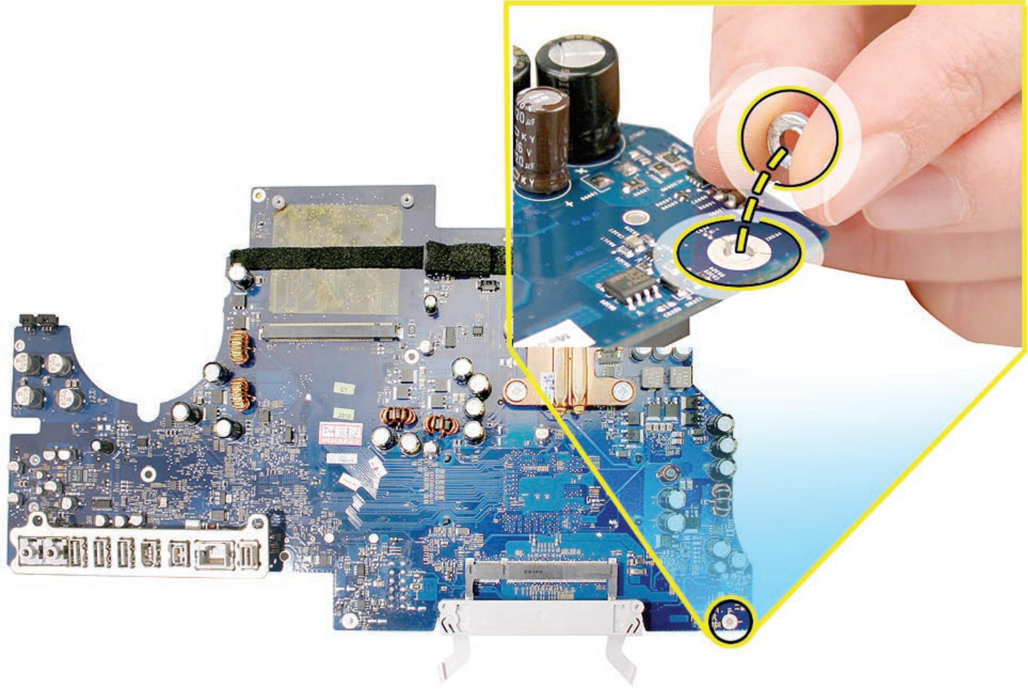
1. If you removed the logic board to access another module, reinstall the board as is. However, if you are replacing the logic board with a new one, notice that a replacement logic board does not include the video card, memory, AirPort Extreme card, Bluetooth card, or IR/ALS components. Make sure these parts are transferred to the new logic board before closing up the computer.



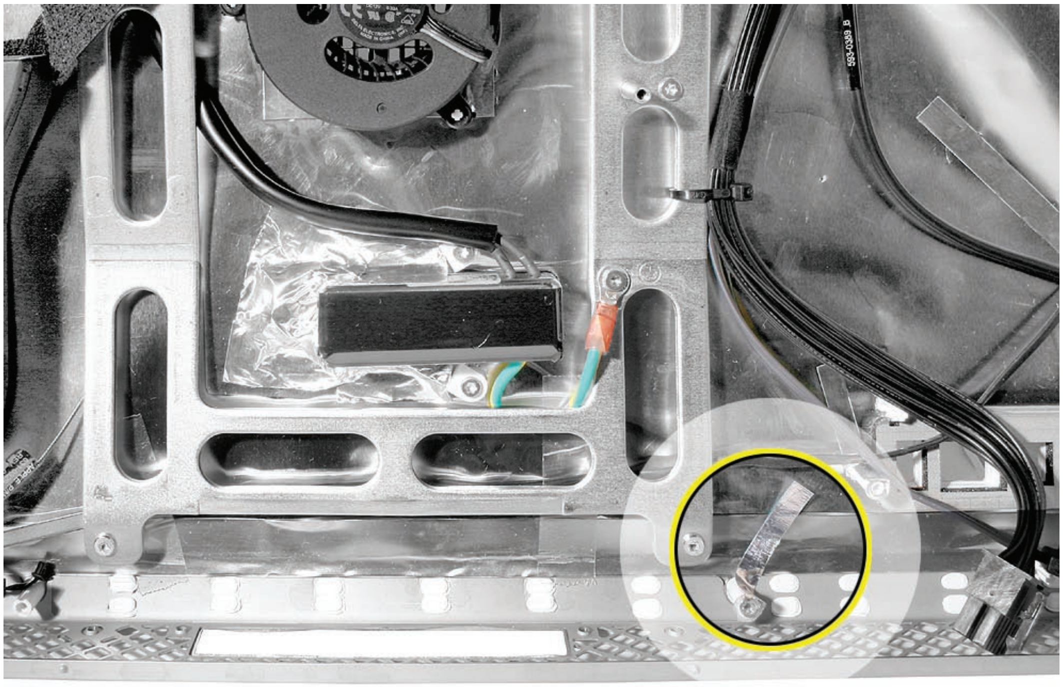


2. Check the board for two spacers. If they are not already present, install the spacers and aluminum tape on the logic board (see steps 3-6). If they are present, go on to step 7.

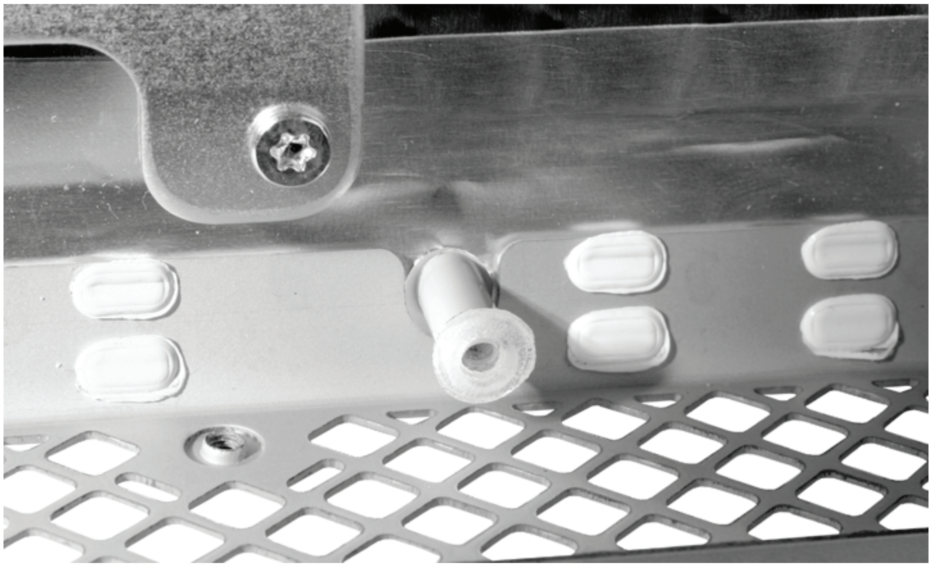
3. Peel off the backing on the spacer. Place one spacer on the logic board at the location circled below.



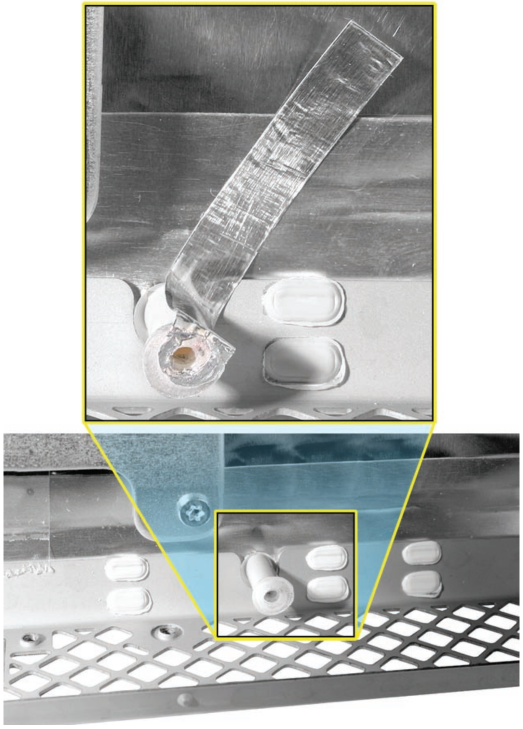
4. The second spacer and the strip of aluminum tape are installed on the white screw post in the rear housing at the location circled below.



5. Place the second spacer on top of the white screw post in the rear housing.



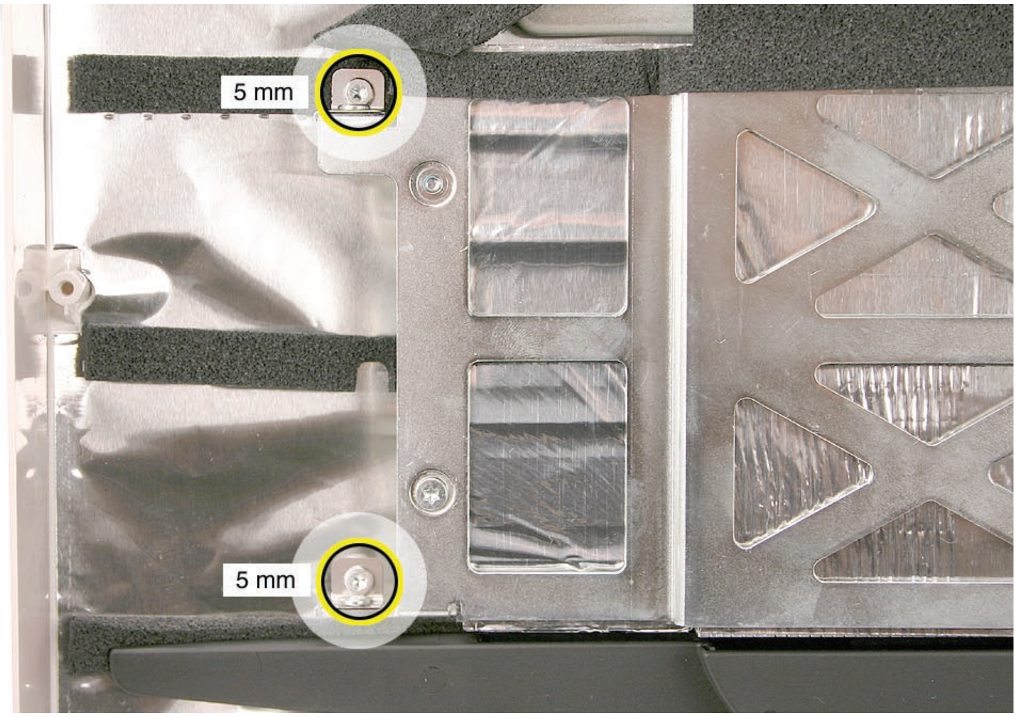
6. Attach the strip of aluminum tape to the rear housing EMI shielding and run the tape up the white screw post and over the spacer (see inset below).



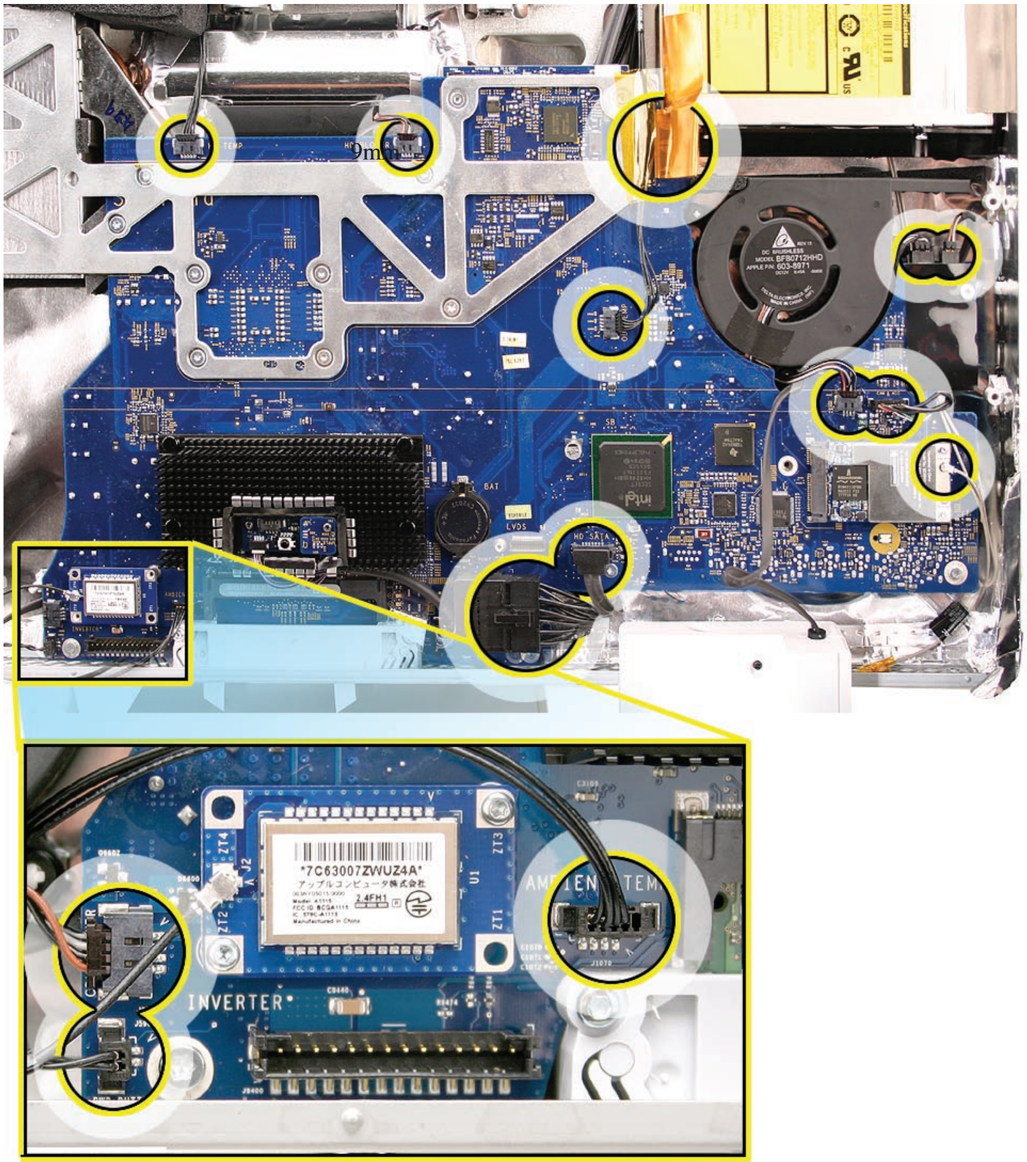
7. Install the video card on the replacement logic board.
8. Position all the logic board cables out of the way so the logic board can be placed into the rear cover.
9. As you lower the board into the rear housing, make sure the memory levers are lowered through the access door opening and the logic board screw holes line up with the board.

10. At the left side of the heatsink, replace the two screws attaching the logic board support bracket to the chassis.

922-7816



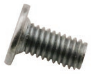
11. Connect the cables.


9mm
TEMP
HD SATA
LVDS
BAT
INVERTER
AMBIENT TEMP

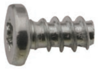
9mm

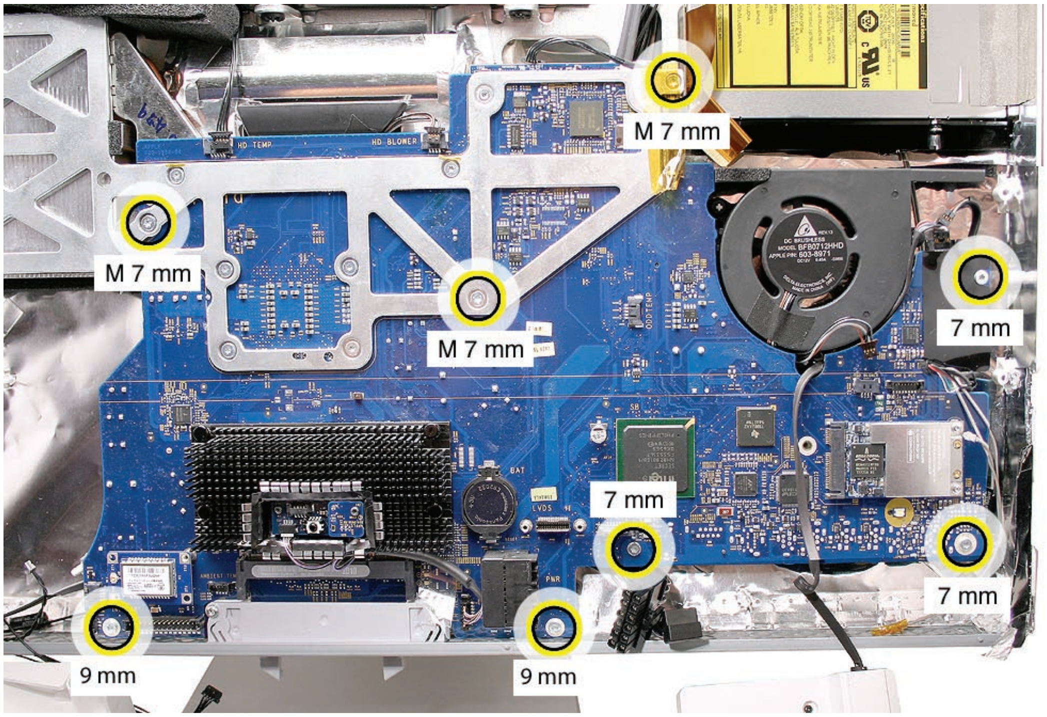
12. Replace the three machine screws first; then replace the five self-tapping screws.
    Note: In the following image, the letter "M" represents the machine screws.

922-7814



922-6800




M 7 mm
M 7 mm
M 7 mm
7 mm
7 mm
7 mm
9 mm
9 mm

13. Replace the display panel.
14. Replace the front bezel.
15. Replace the access door.

Hard Drive Fan

Tools

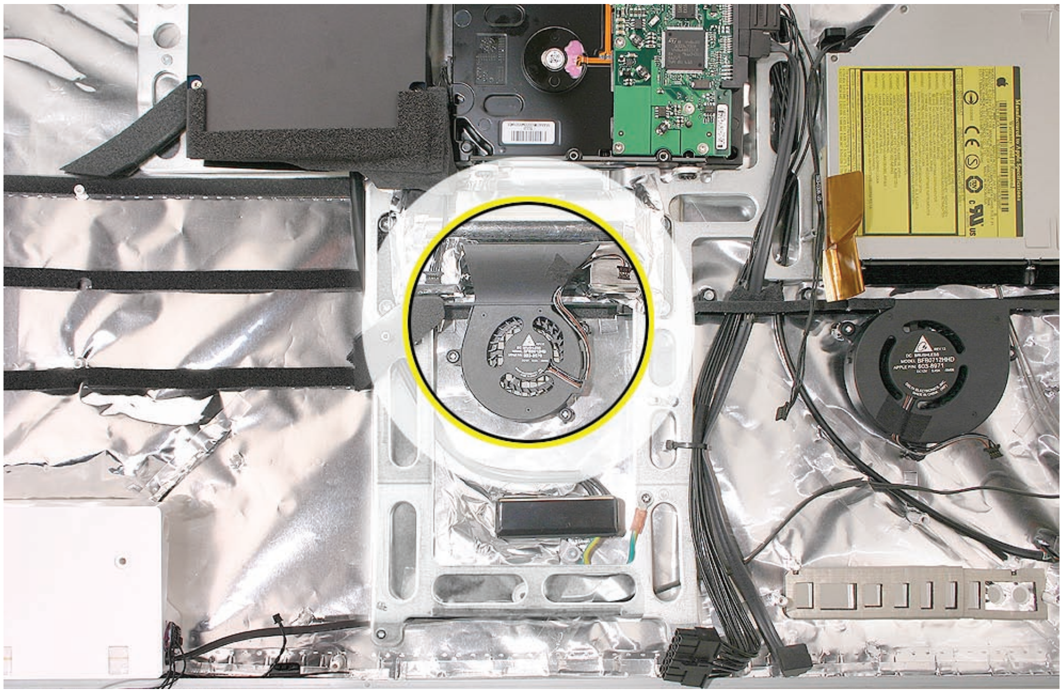
No tools are required to remove the hard drive fan.

Preliminary Steps

Before you begin, remove the following:

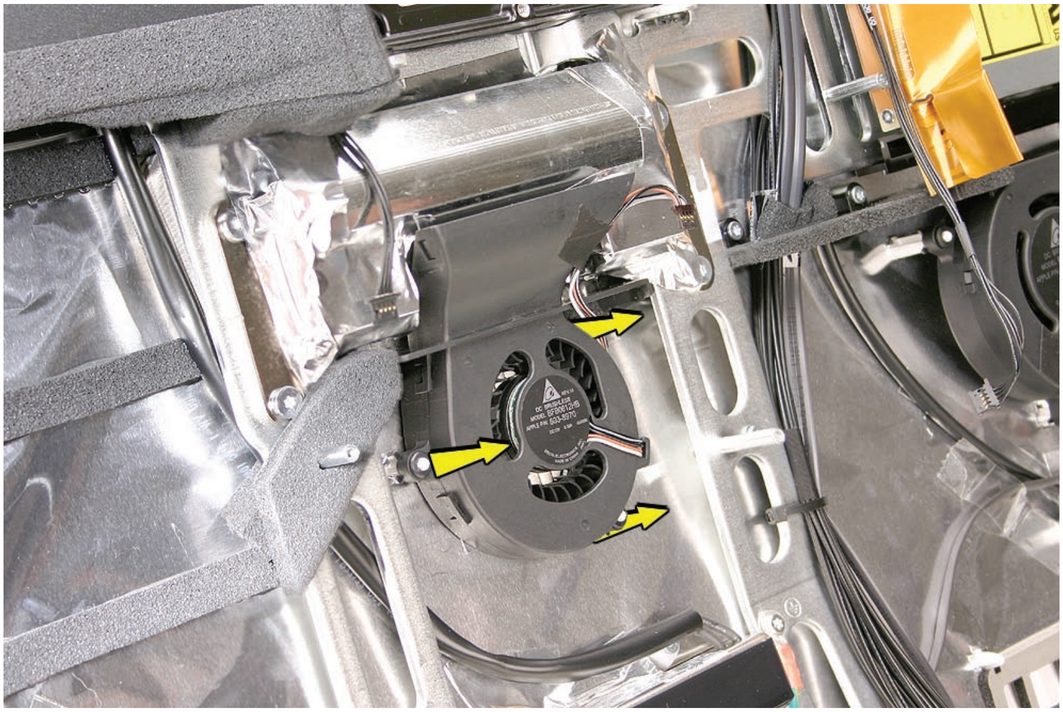
- Access door
- Front bezel
- LCD display panel
- Speaker, right
- Logic board

Part Location



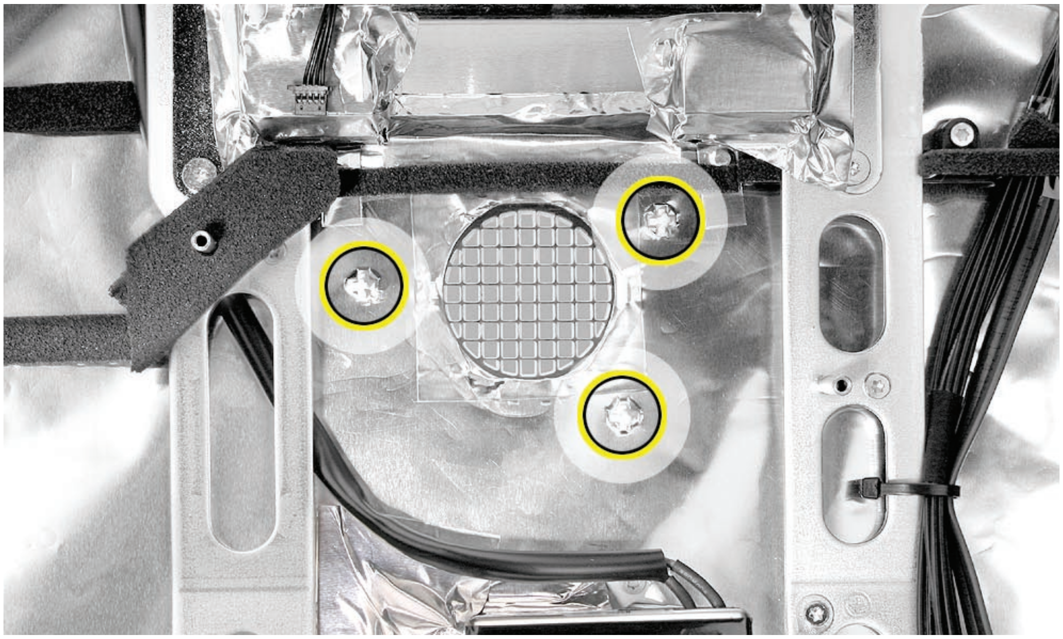
Removing the Hard Drive Fan

Once the logic board has been removed, the fan will already be disconnected. Lift the fan straight up and off of the three guide posts.



Replacing the Hard Drive Fan

1. Before installing the hard drive fan, make sure the guide posts are not blocked.



2. Replace the logic board.
3. Replace the right speaker.
4. Replace the display panel.
5. Replace the front bezel.
6. Replace the access door.

Speaker, Left

Tools

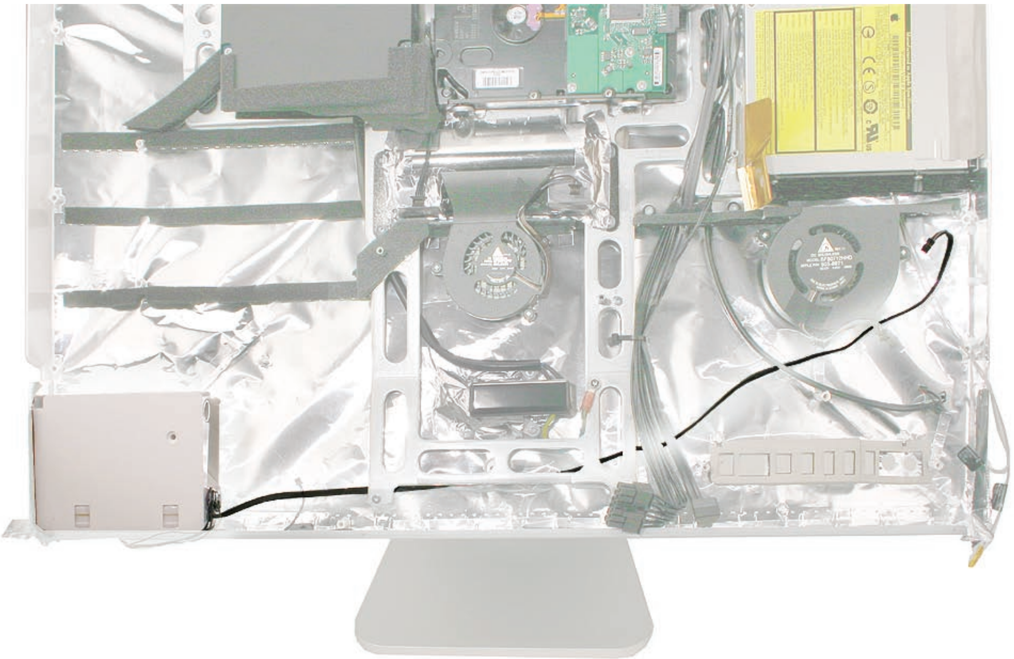
- Torx T10 screwdriver
- Permanent ink, felt-tip pen

Preliminary Steps

Before you begin, remove the following:

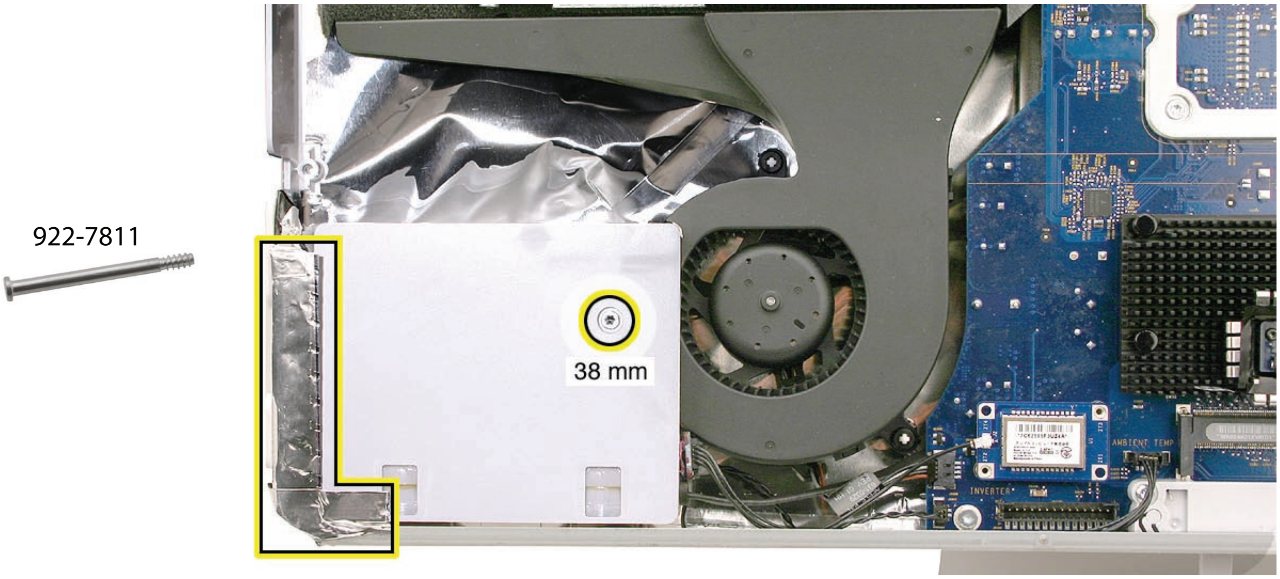
- Access door
- Front bezel
- LCD display panel
- CPU fan
- Speaker, right
- Logic board

Part Location

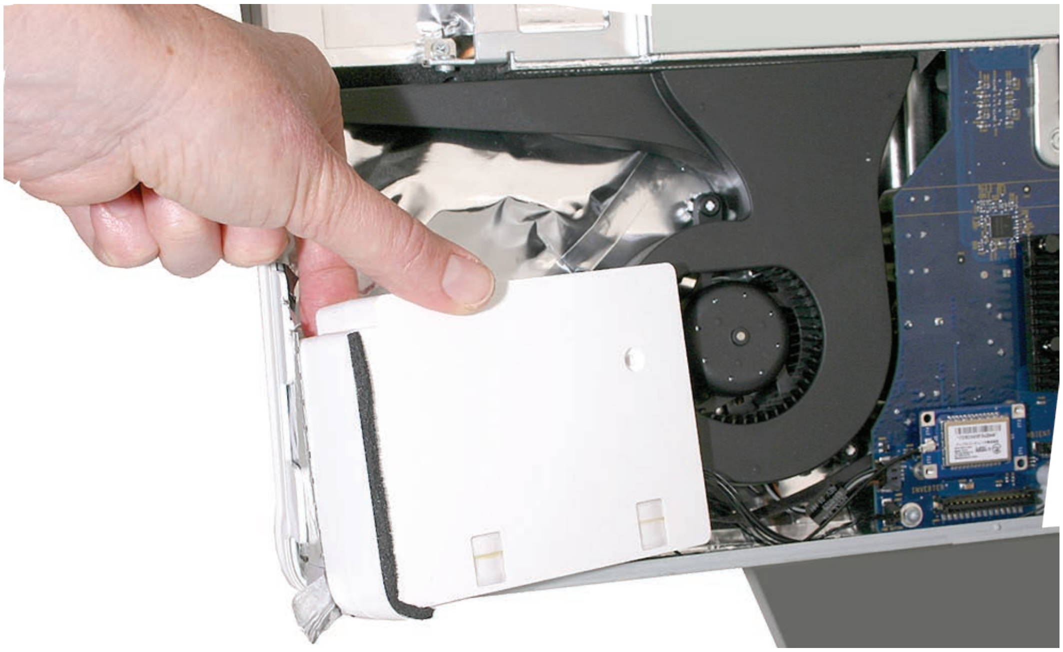


Removing the Left Speaker

1. Using a T10 torx screwdriver, remove the 38-mm long screw from the left speaker.
   Replacement Note: The longer of the two speaker mounting screws is used to secure the left speaker; the shorter (26-mm long)screw secures the right speaker.
2. Peel up the EMI shield and tape from the left side and lower left corner of the speaker.

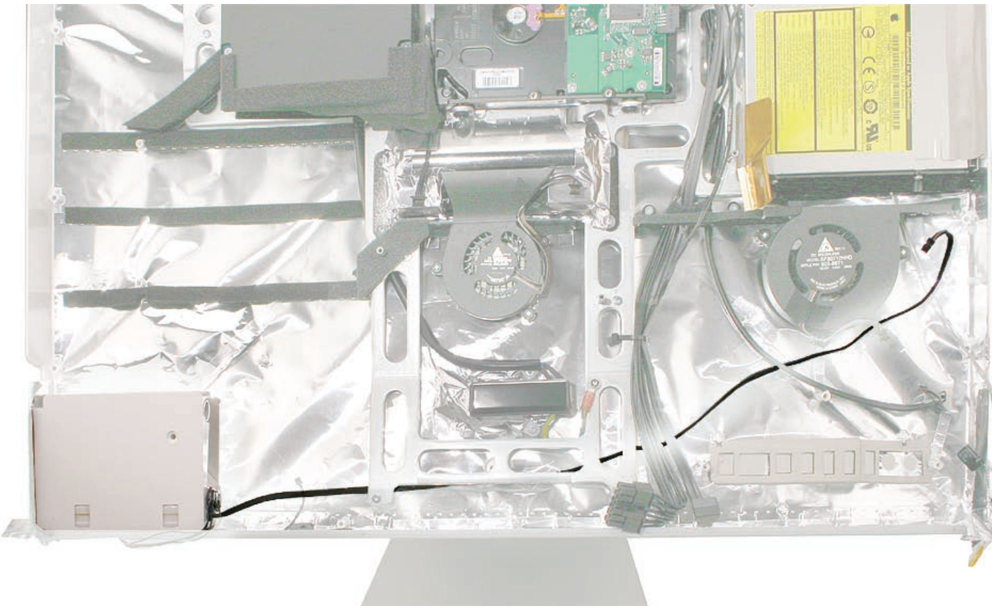


3. Loosen the speaker from the computer assembly.

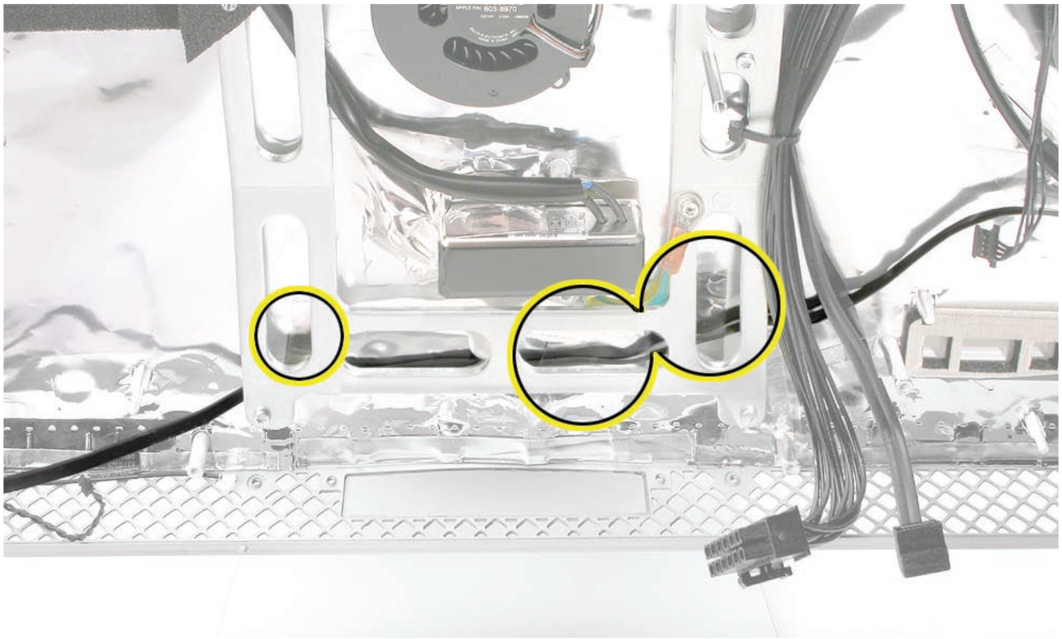


4. Remove the CPU fan.
5. Remove the logic board.

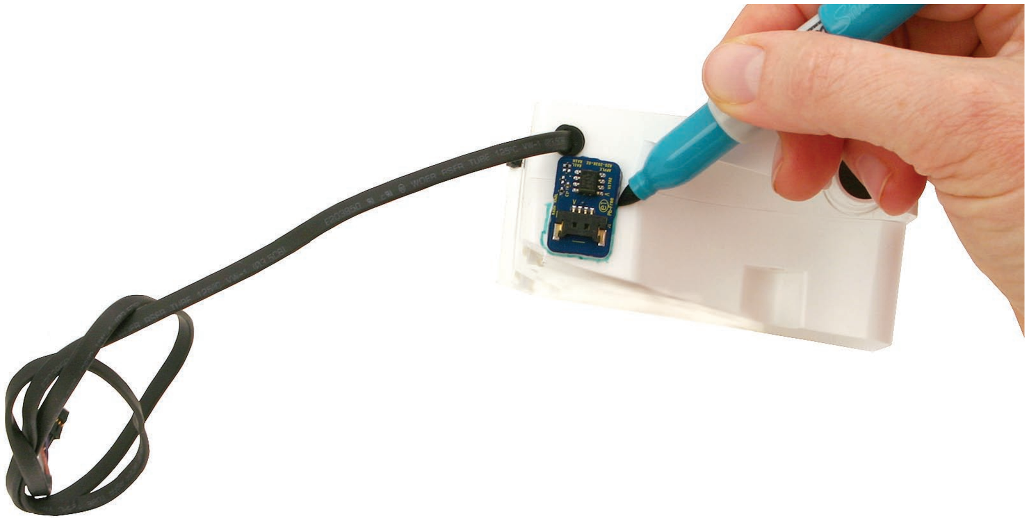
6. Note that the left speaker cable runs under the length of the logic board, between the chassis and rear cover, and connects to the top right corner of the logic board.



7. With the logic board removed, peel up the tape that secures the speaker cable between the chassis and the EMI shielding.



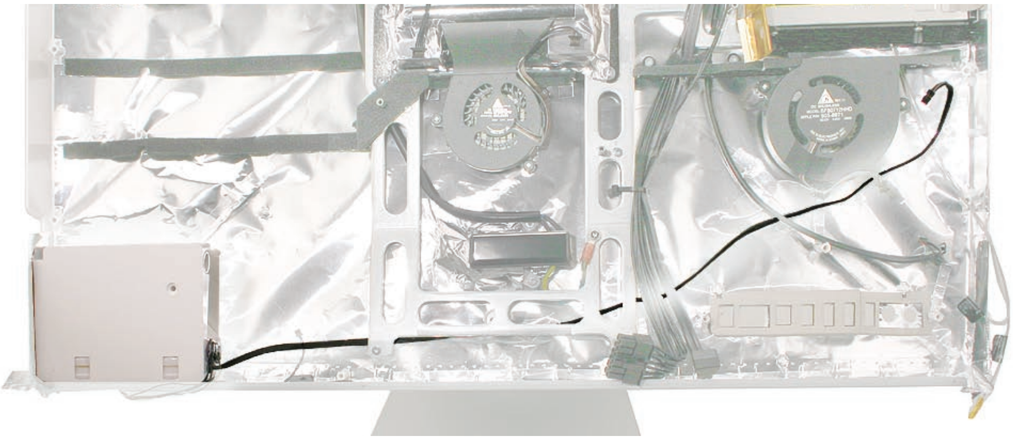
8. Replacement Note: Notice that the left speaker body includes an ambient temperature sensor and attached cable. Check the position of the sensor. If you will be transferring it to a replacement speaker, use a permanent ink marker to draw an outline of the sensor location. Refer to that marking when placing the sensor on a new left speaker. Refer to **Ambient Temperature Sensor** in this chapter.



Note: A replacement left speaker includes the attached cable, gasket, and adhesive strip for the sensor, but not the sensor itself.

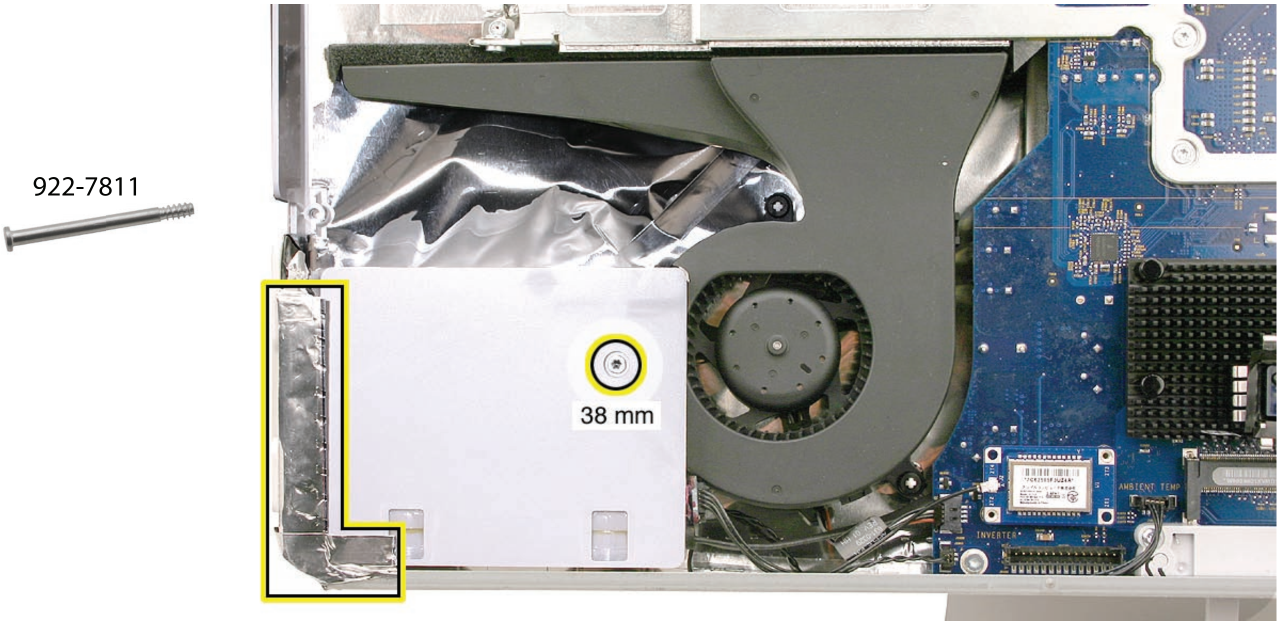
Replacing the Left Speaker

1. Tape the speaker cable onto the EMI sheielding on the rear cover. Make sure the cable extends up enough at the top to allow slack to connect to the top right corner of the logic board.



2. Replace the logic board.
3. Connect the speaker cable to the logic board.

4. Replace the CPU fan.
5. Install the speaker in the computer assembly. Secure the left speaker with the longer of the two speaker mounting screws.


922-7811
38 mm
AMBIENT TEMP
INVERTER

6. Connect the ambient temperature connector to the logic board.
7. Replace the display panel.
8. Replace the front bezel.
9. Replace the access door.

Video Card

Tools

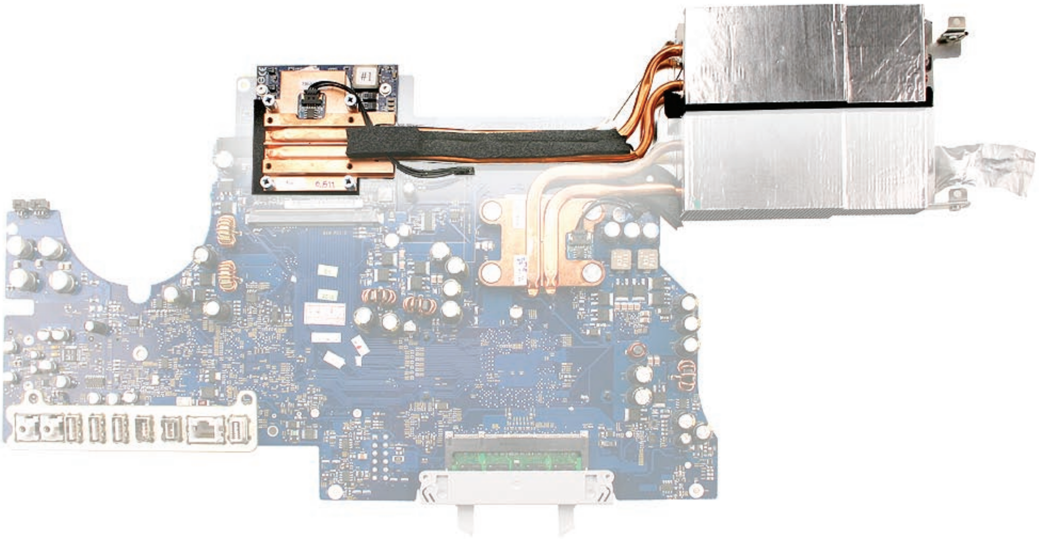
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel
- CPU fan
- Speaker, right
- Logic board

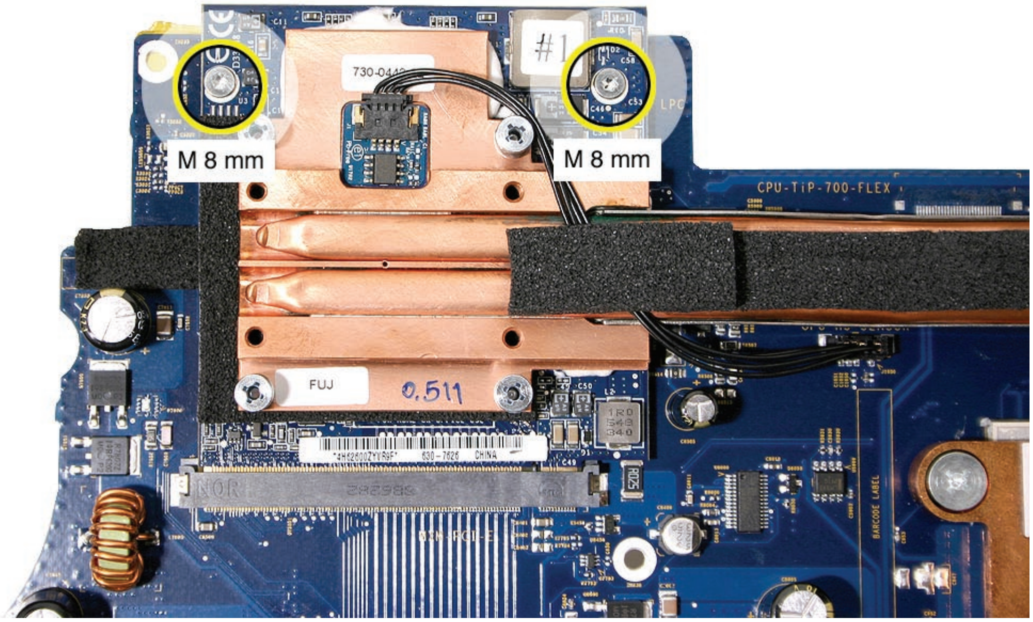
Part Location



Removing the Video Card

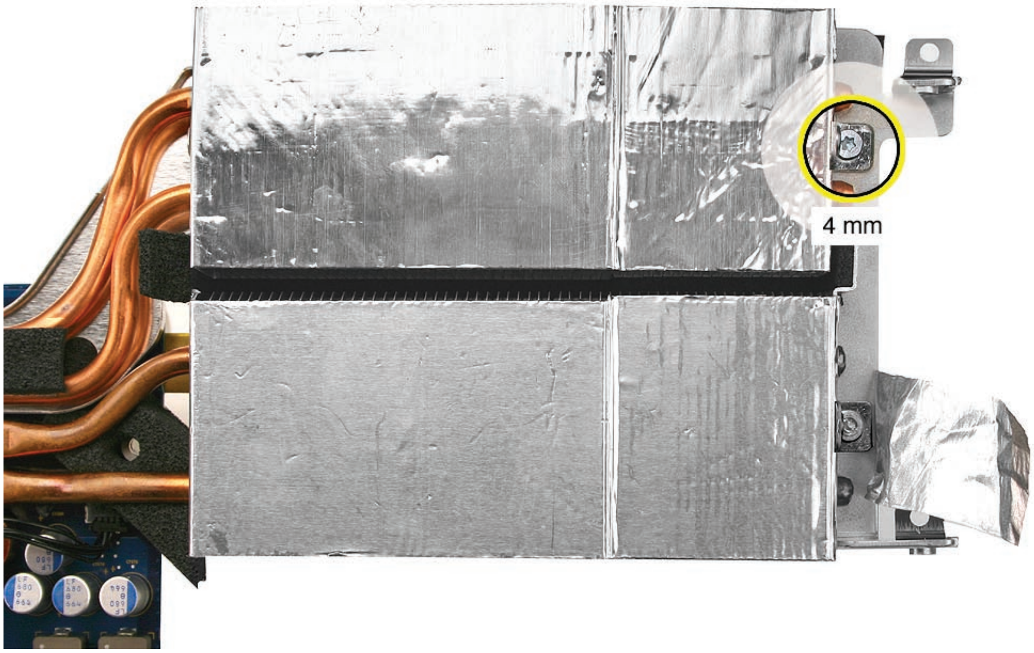
1. Remove the two 8-mm long machine screws.
   Be sure to retain these screws for reinstallation.

922-7970

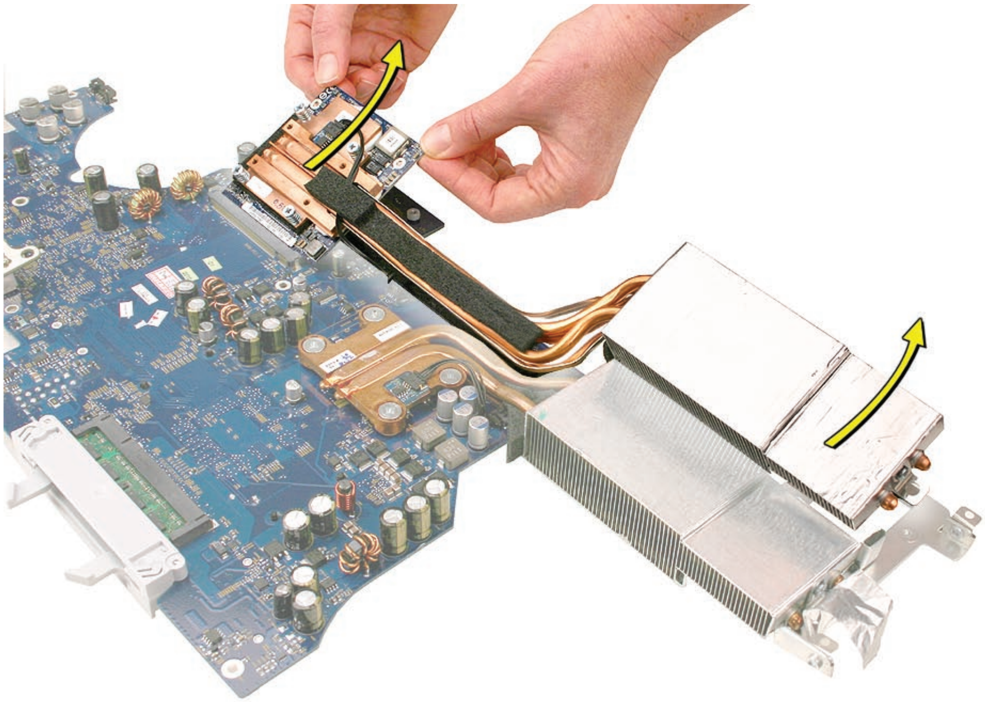


2. At the far right end of the video card heatsink, remove the 4-mm long support screw.
   Be sure to retain this screw for reinstallation.

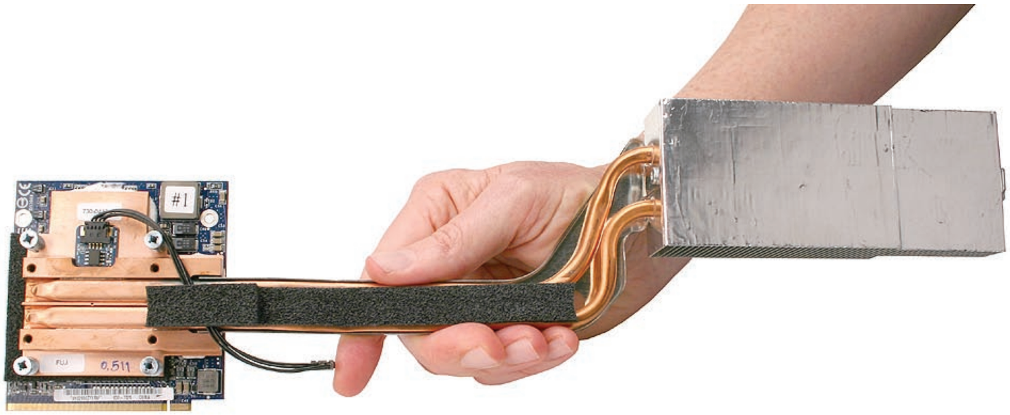
922-7971



3. Tilt up the video card with attached heatsink, and disconnect it from the card connector on the logic board.

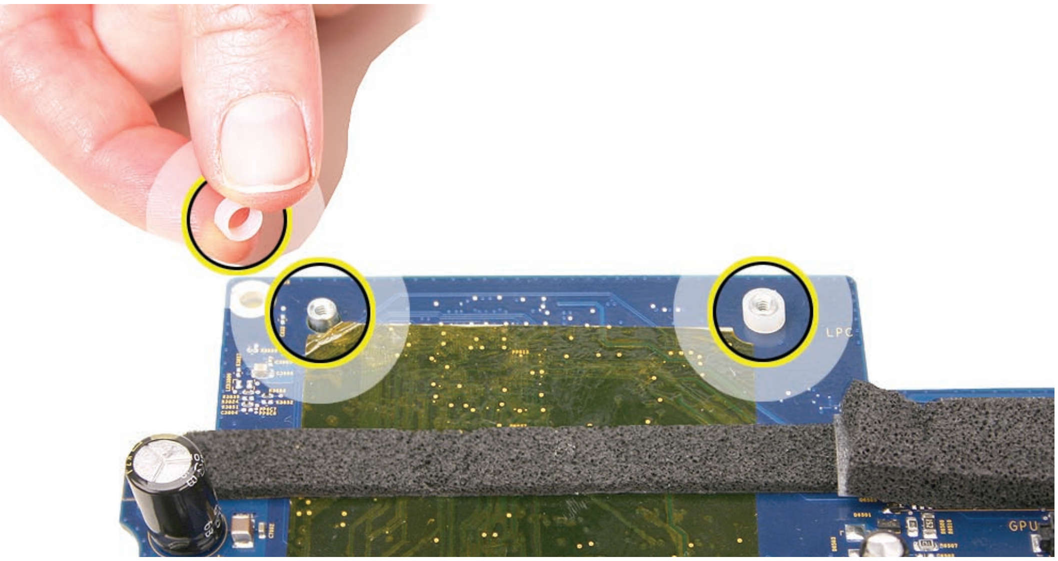


4. When handling the video card, hold it by the heat pipe brace.

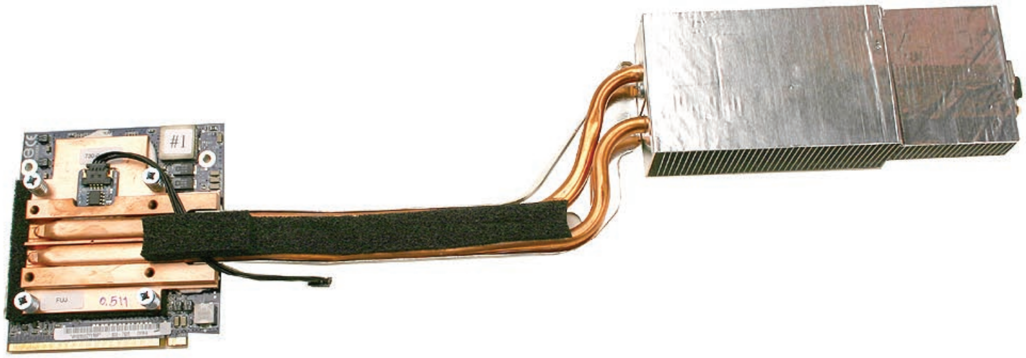


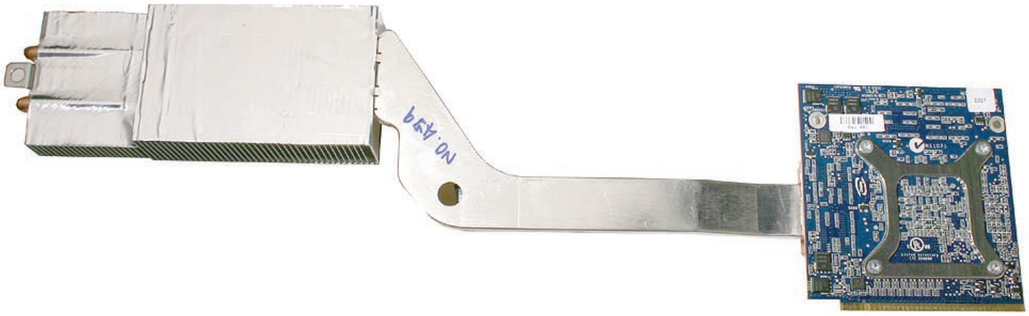
5. Be sure to retain the two plastic spacers on the video card area of the logic board.

922-7972



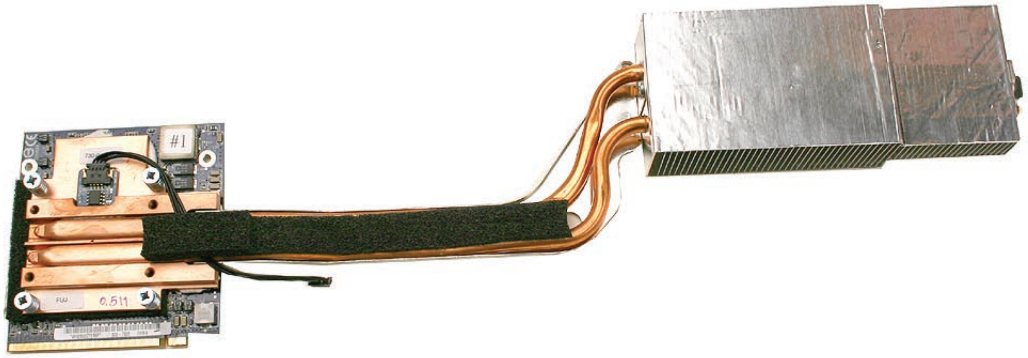
6. Note that a replacement video card includes a temperature sensor and cable. Make sure these are pre-installed on the card before you replace the video card. (The sensor cable runs under the foam strip.)



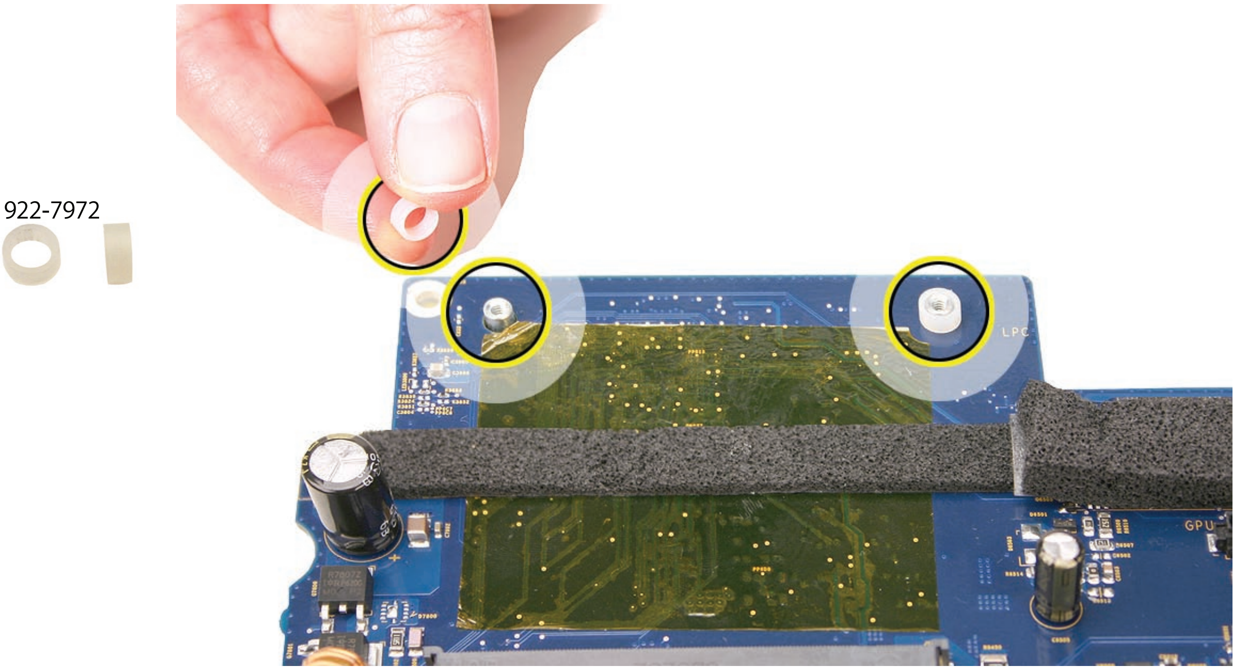


Replacing the Video Card

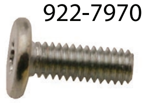
1. Make sure that video card includes a temperature sensor and cable. (The sensor cable runs under the foam strip.)

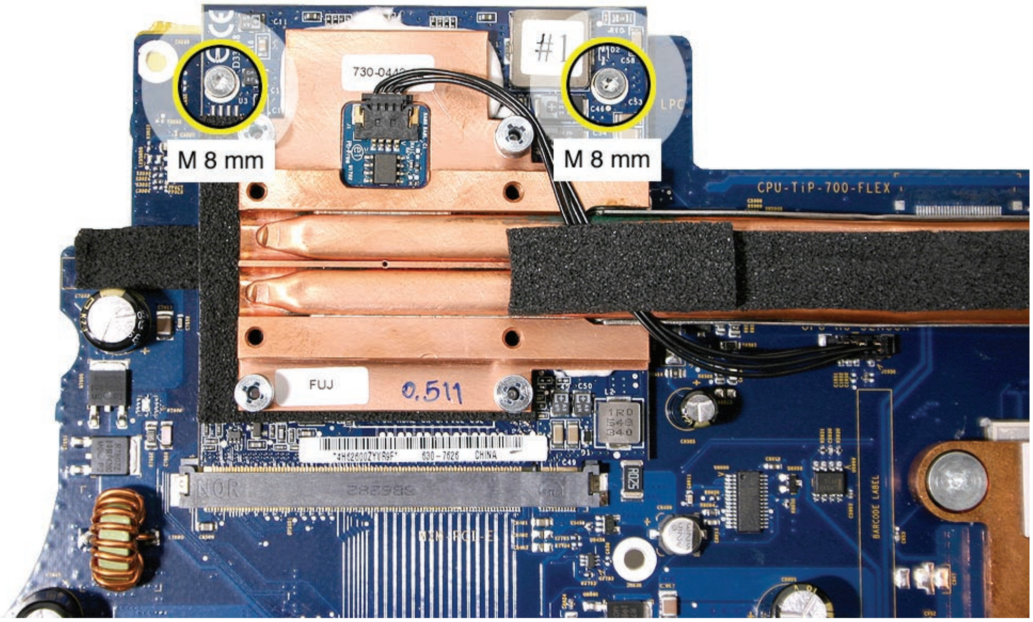


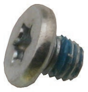
2. Install the two plastic spacers on the video card area of the logic board, and make sure they remain in place as you install the video card on the logic board.

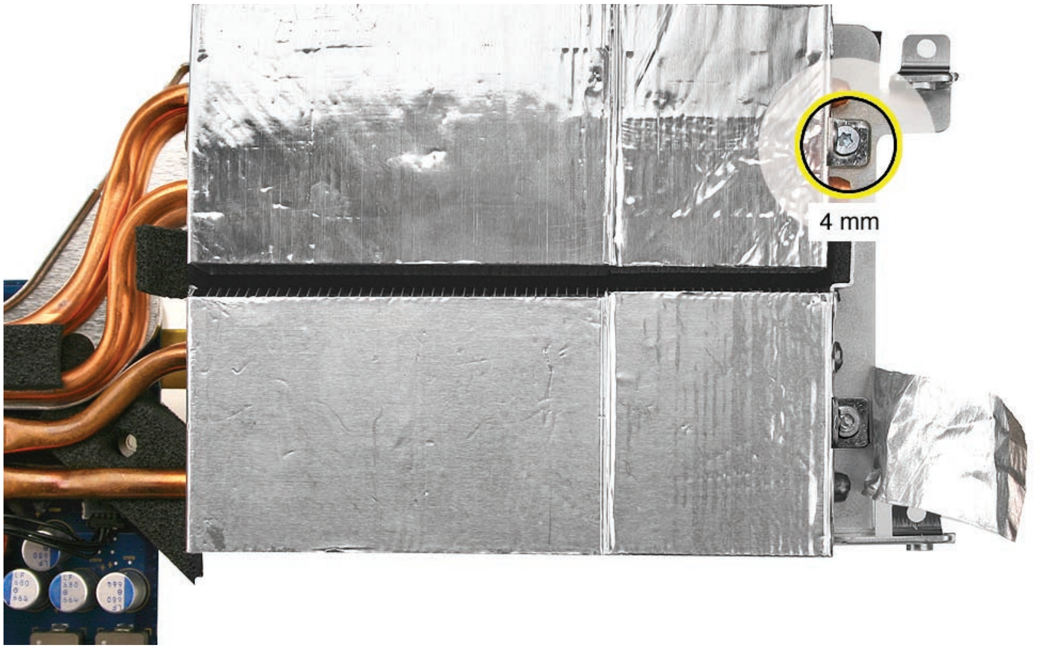


3. Connect the video card to the logic board, and install the three screws.




M 8 mm
M 8 mm
730-044
#1
CPU-TiP-700-FLEX
FUJ
0.511
BARCODE LABEL





4. Replace the logic board.
5. Replace the speakers.
6. Replace the display panel.
7. Replace the front bezel.
8. Replace the access door.

AC Power Inlet

Tools

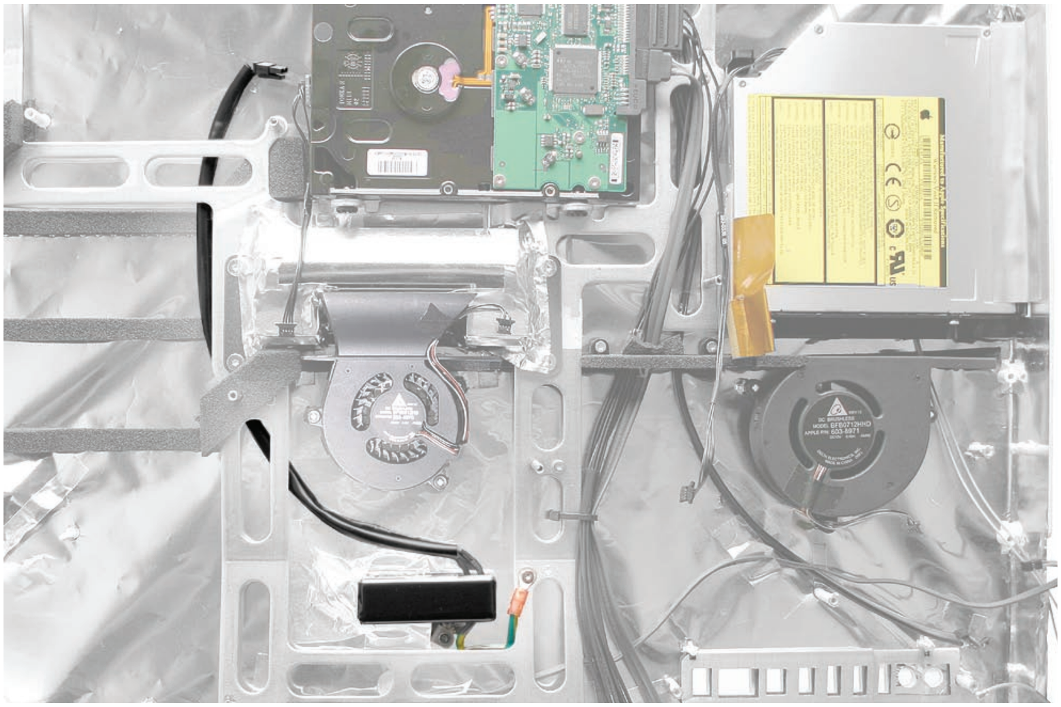
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

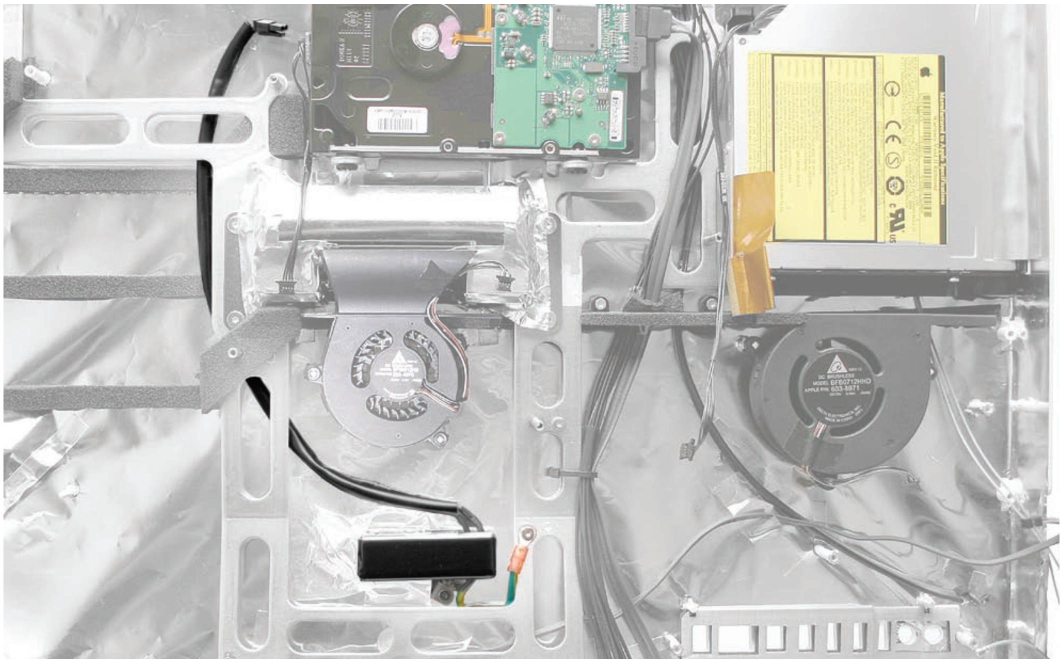
- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Logic board

Part Location



Removing the AC Power Inlet

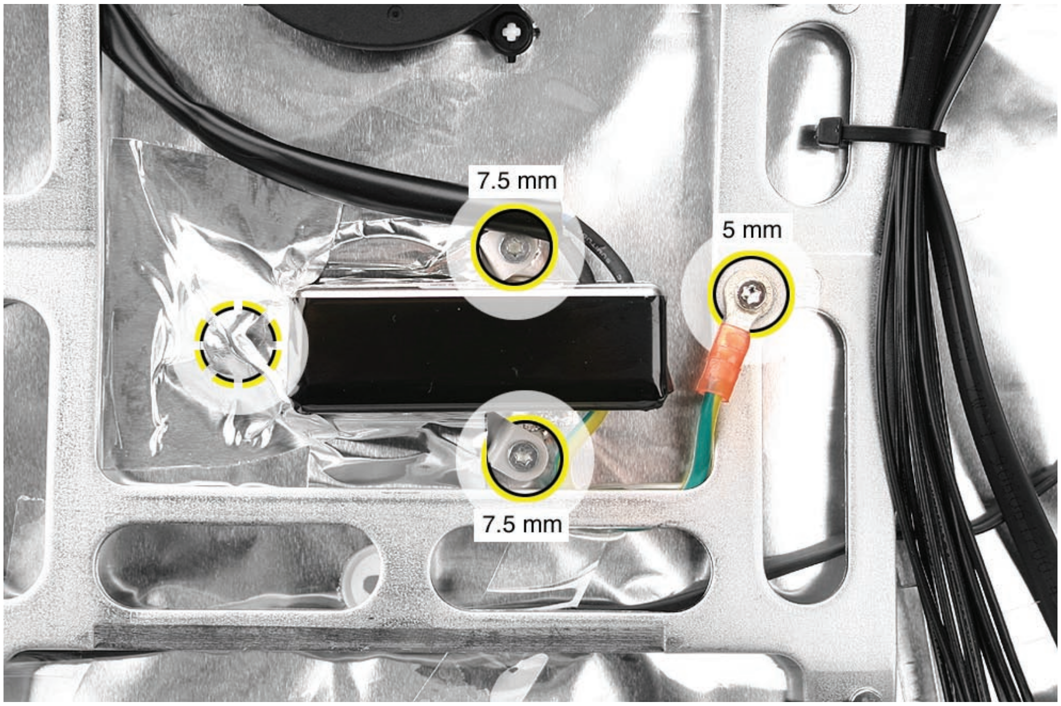
1. Note the cable routing between the chassis frame and the rear cover.



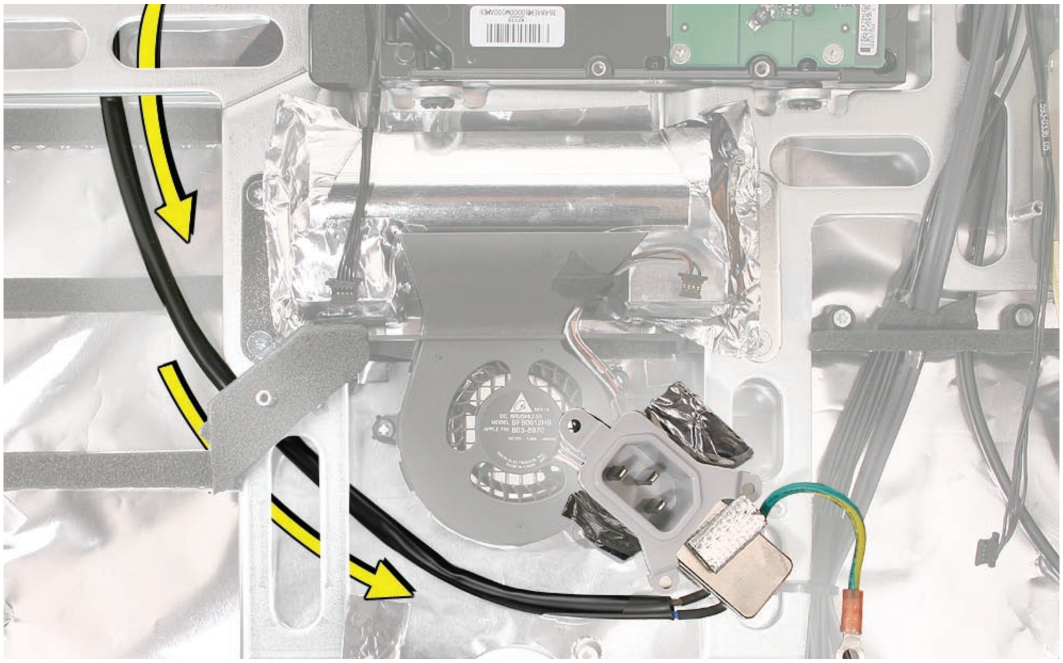
2. Using a torx T10 screwdriver, remove the three 7-5-mm long self-tapping screws from the power inlet and the 5-mm long machine screw from the ground cable . Remove the EMI tape on the metal case.

922-7069

922-6800

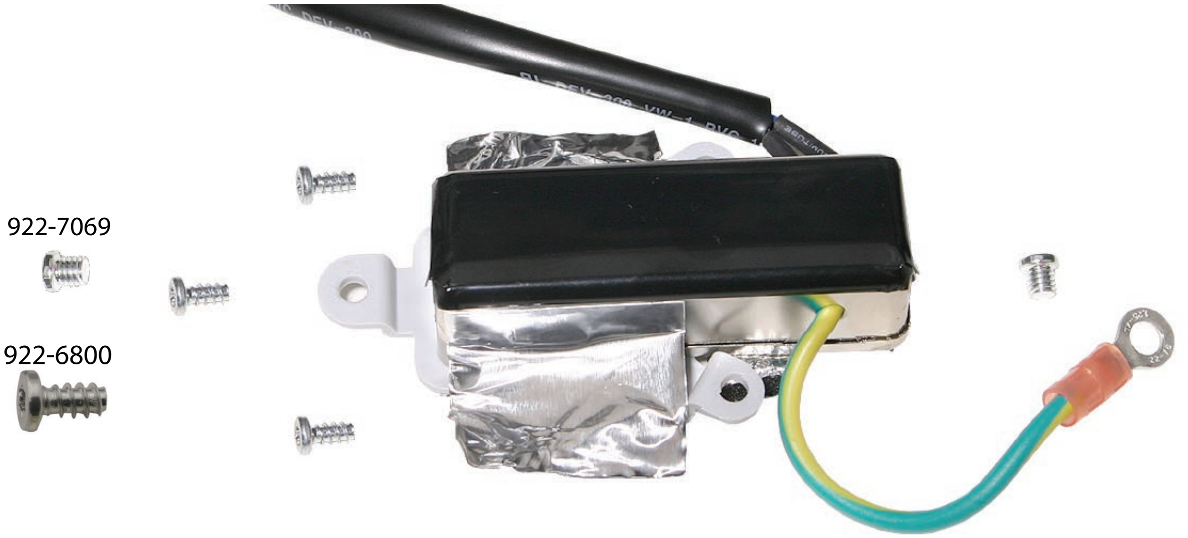


3. Route the cable out from under the chassis, and remove the AC power inlet.

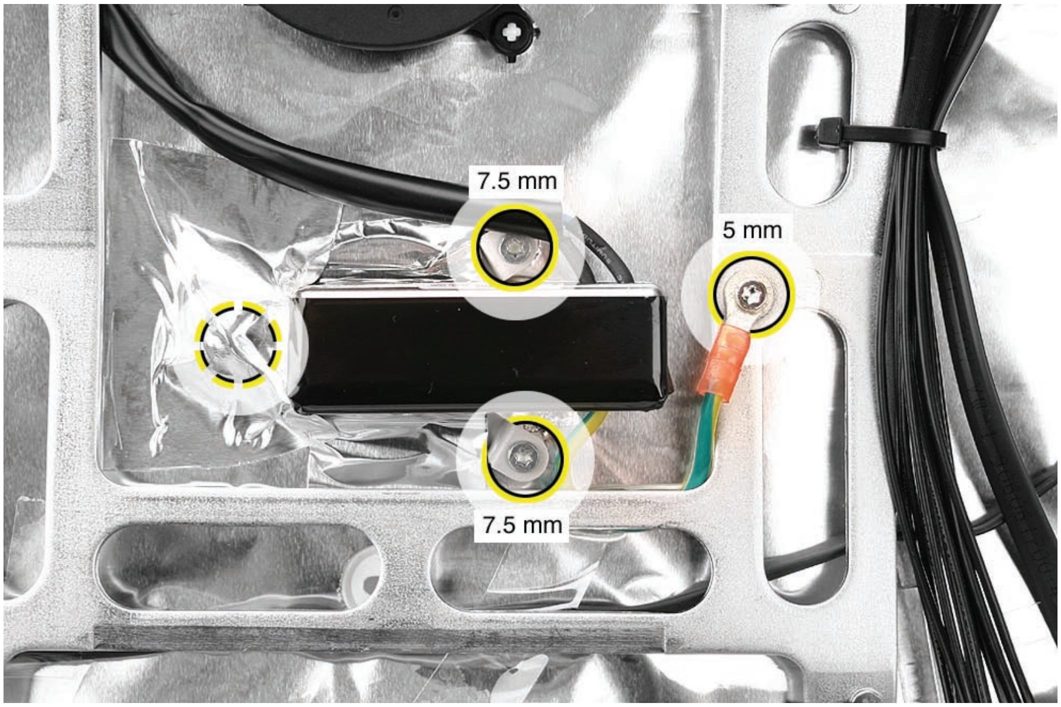


Replacing the AC Power Inlet

1. Install the AC power inlet on the rear housing screw mounts with three self-tapping screws.
2. Install the power inlet ground cable to the chassis with a machine screw.



3. Route the power inlet cable beneath the chassis.
4. Using the EMI tape, securely tape the top and bottom edges of the AC power inlet to the rear housing.
5. Make sure that the screw on the left end of the AC power inlet is covered by the EMI tape.



6. Replace the power supply, and connect the AC power inlet cable.
7. Replace the logic board.
8. Replace the display panel.
9. Replace the IR Board.
10. Connect the antennas.
11. Replace the front bezel.
12. Replace the memory access door.

Camera/Microphone Cable

Tools

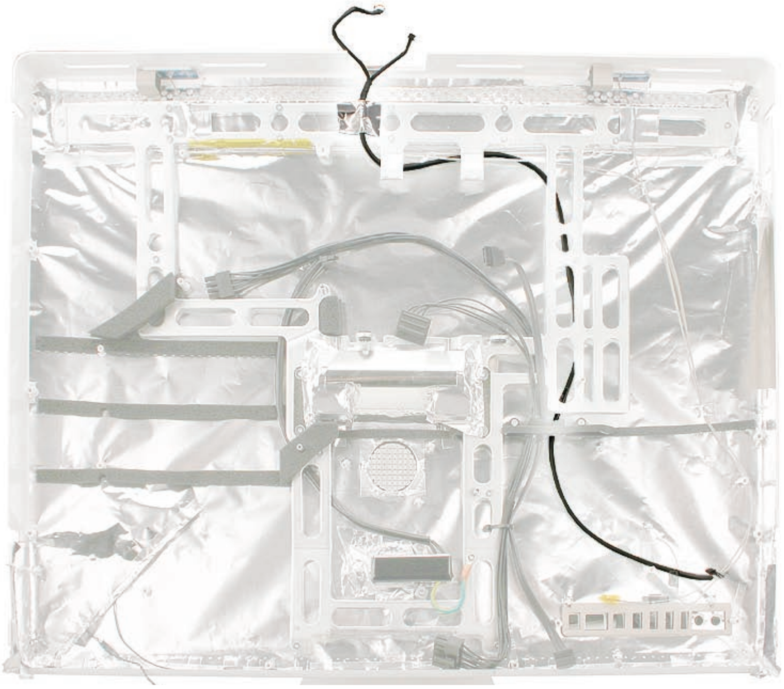
No tools are required to remove the camera/microphone cable.

Preliminary Steps

Before you begin, remove the following:

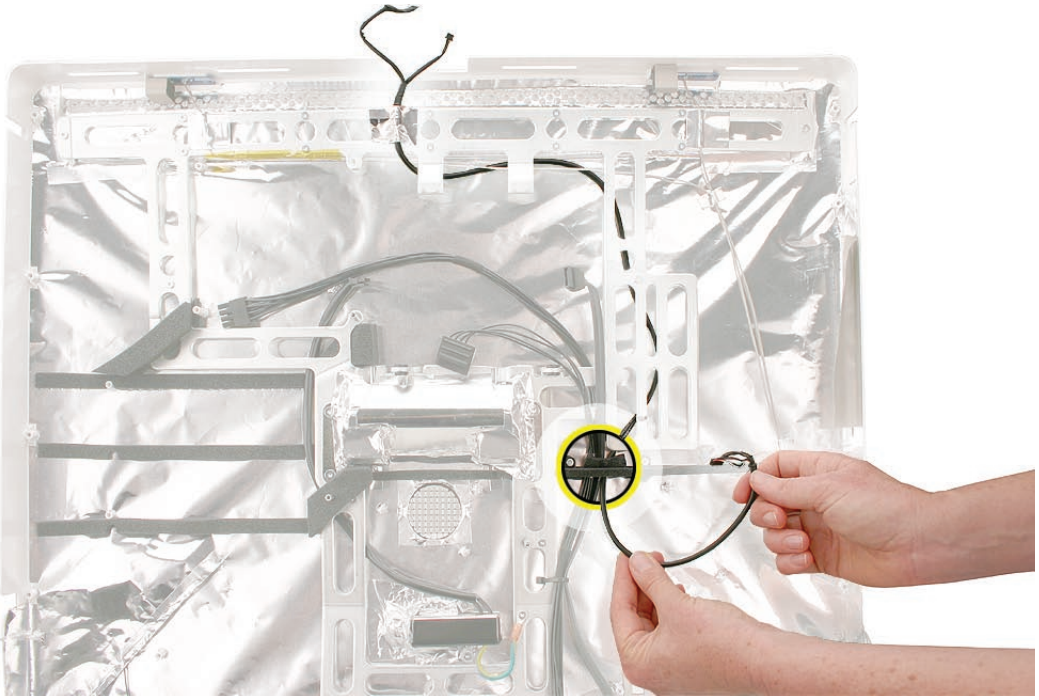
- Access door
- Front bezel
- LCD display panel
- Hard drive
- Optical drive
- CPU fan
- Speaker, right
- Logic board

Part Location

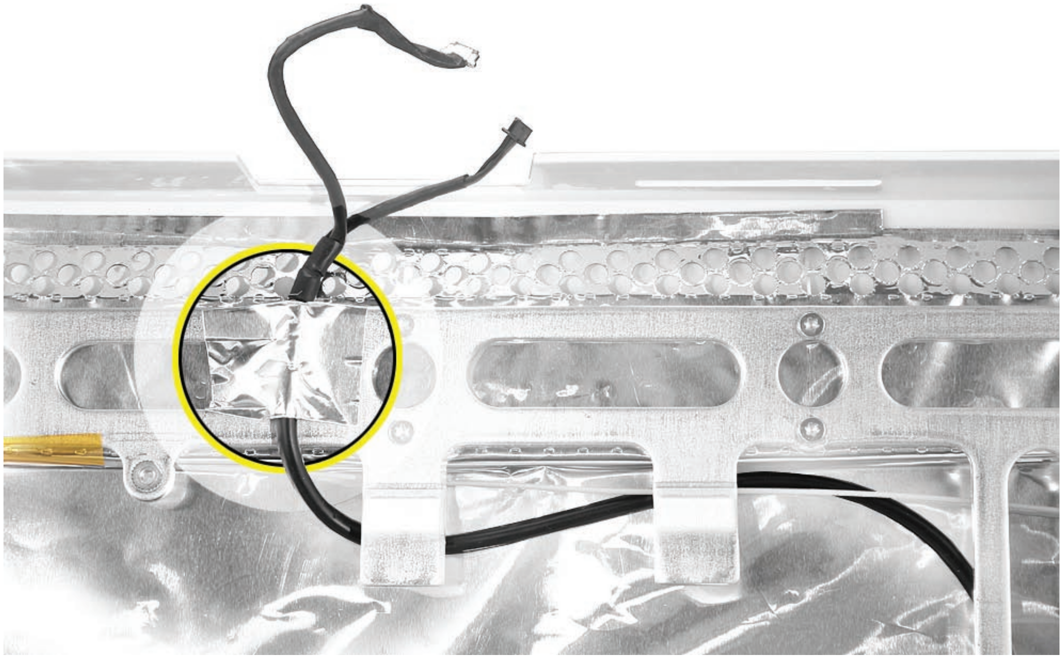


Removing the Camera/Microphone Cable

1. Route the cable up through the cable channel on the rear cover.



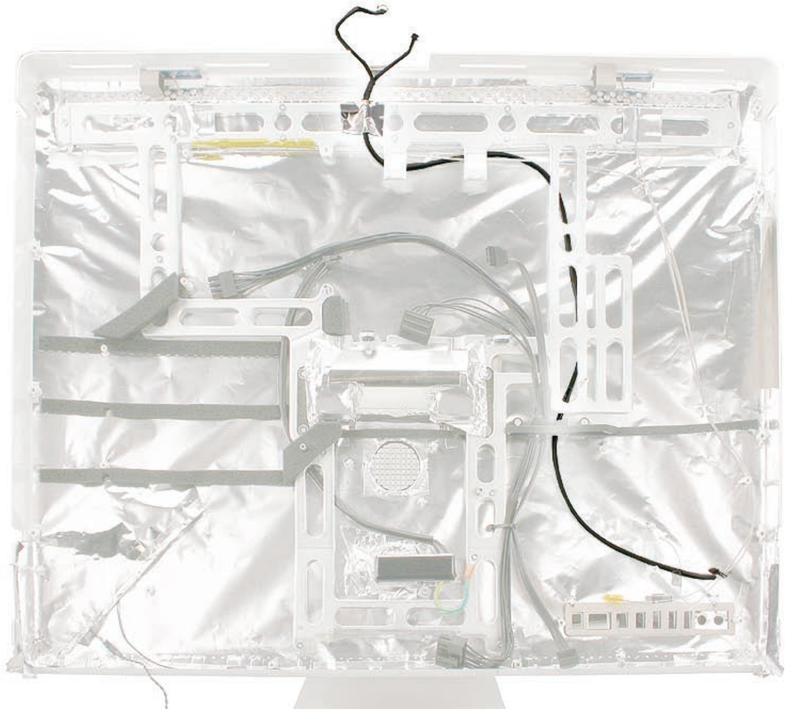
2. At the top of the rear cover, peel back the tape that secures the cable onto the chassis.



3. Route the rest of the cable out from under the chassis.

Replacing the Camera/Microphone Cable

1. Insert the two-headed end of the camera cable through the access hole in the upper EMI shield.
2. Route the camera cable as shown below. Tape the camera cable to the rear housing.



3. Replace the optical drive, flex drive cable and screws, and optical drive sensor cable.
4. Replace the logic board.
5. Replace the speakers.
6. Replace the display panel.
7. Replace the front bezel.
8. Replace the access door.

AirPort Antennas

Tools

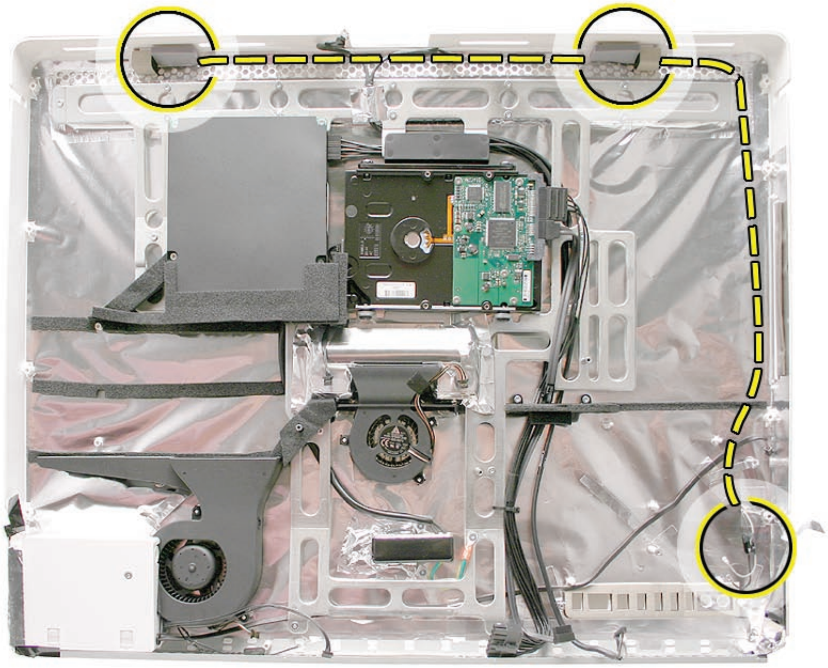
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, remove the following:

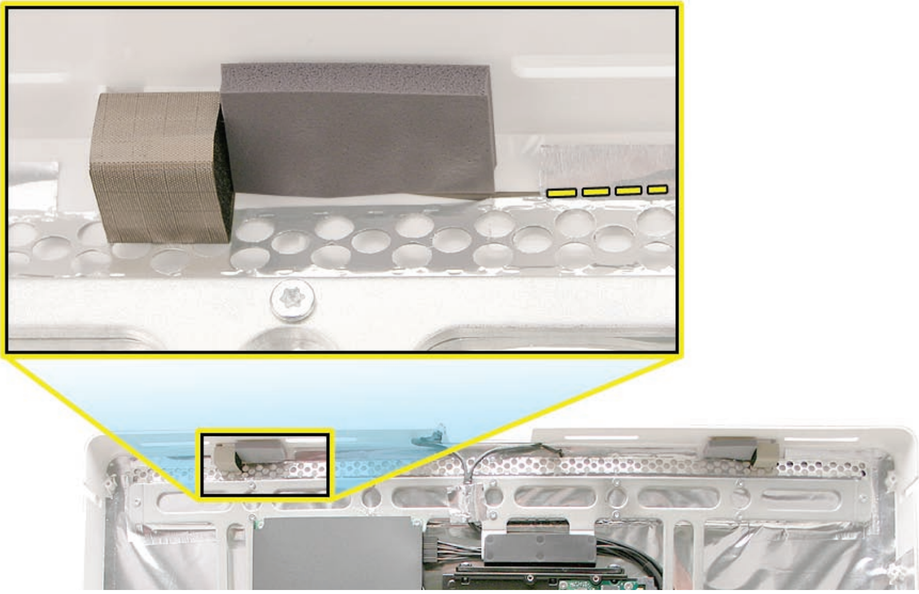
- Access door
- Front bezel
- LCD display panel
- Optical drive fan
- Optical drive
- Speaker, right
- Logic board

Part Location

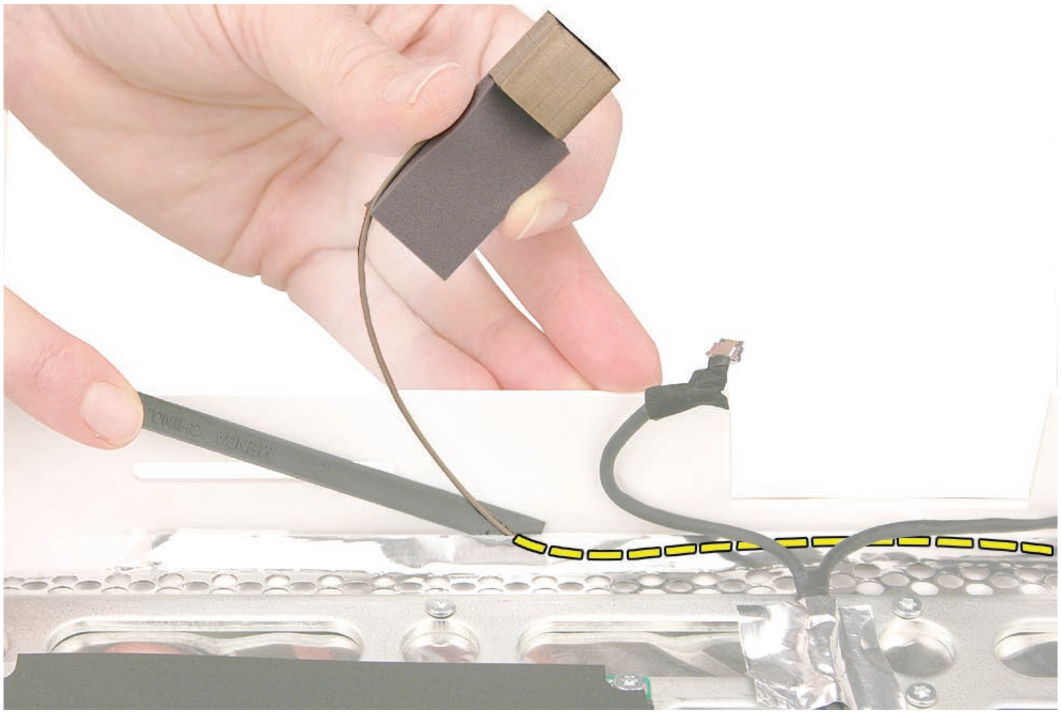


Removing the AirPort Antennas

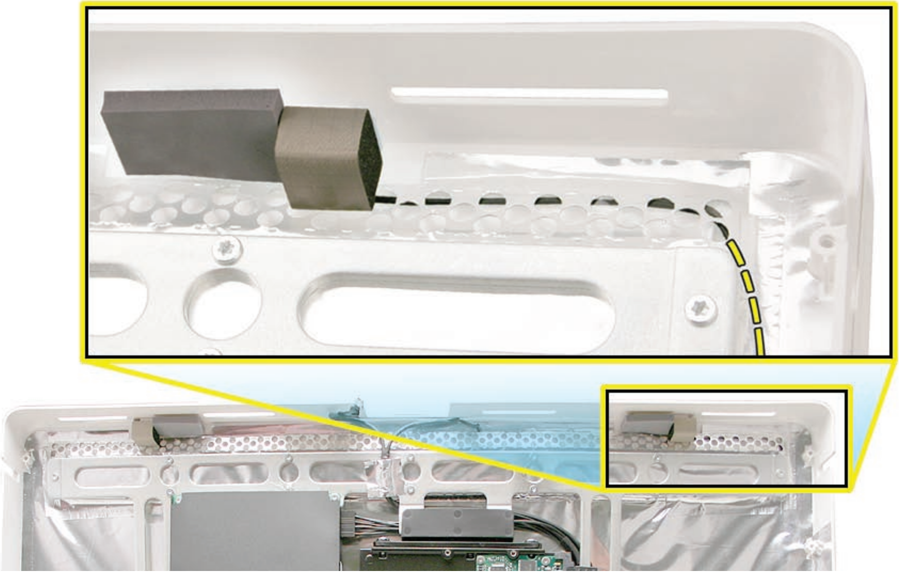
1. At the top of the rear cover, note the location and placement of the left antenna board.



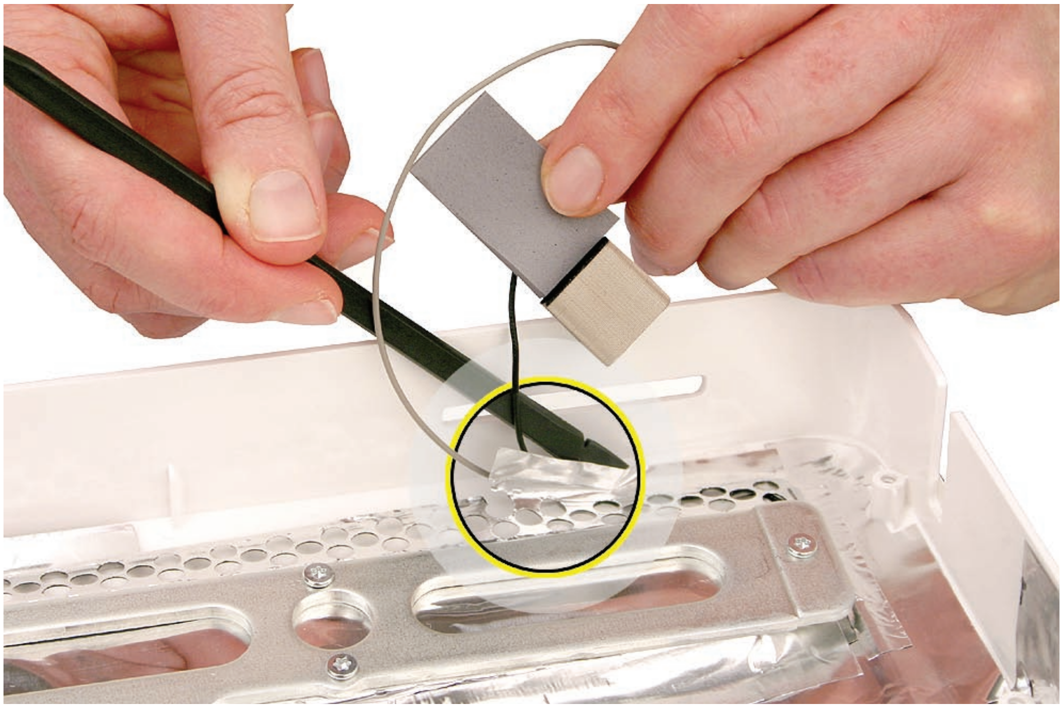
2. At the top of the rear cover, pry up the left antenna board with a black stick and carefully peel up the EMI shielding to unroute the left antenna board and attached gray cable.



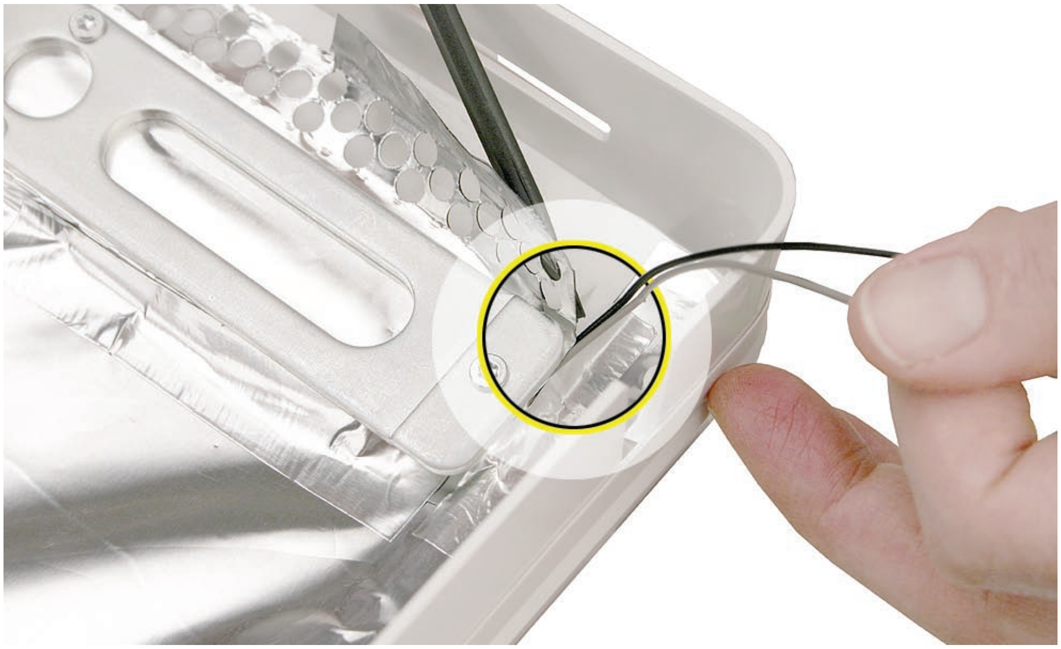
3. At the top of the rear cover, note the location and placement of the right antenna board.



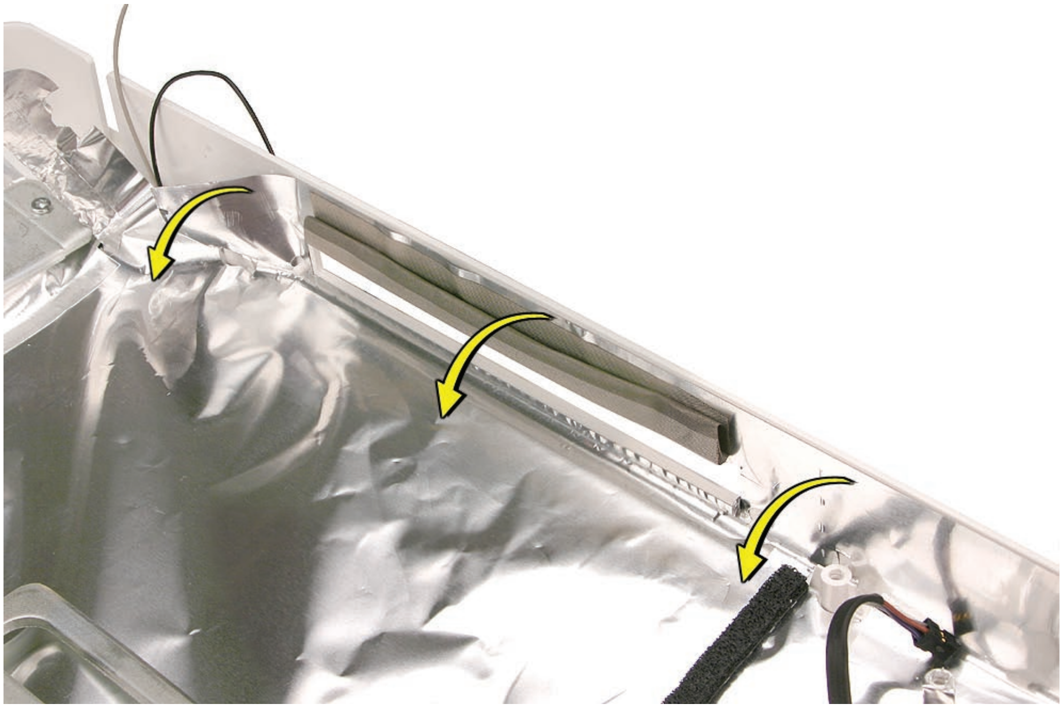
4. At the top right corner of the rear cover, pry up the right antenna board. Carefully pull up both antenna cables from under the edge of the EMI shielding.



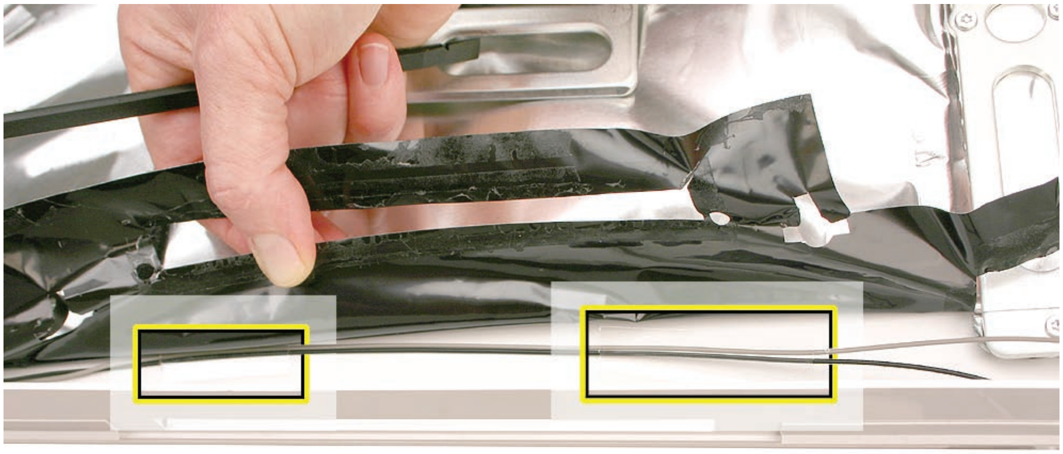
5. Note how the cables are routed at the right corner of the chassis.



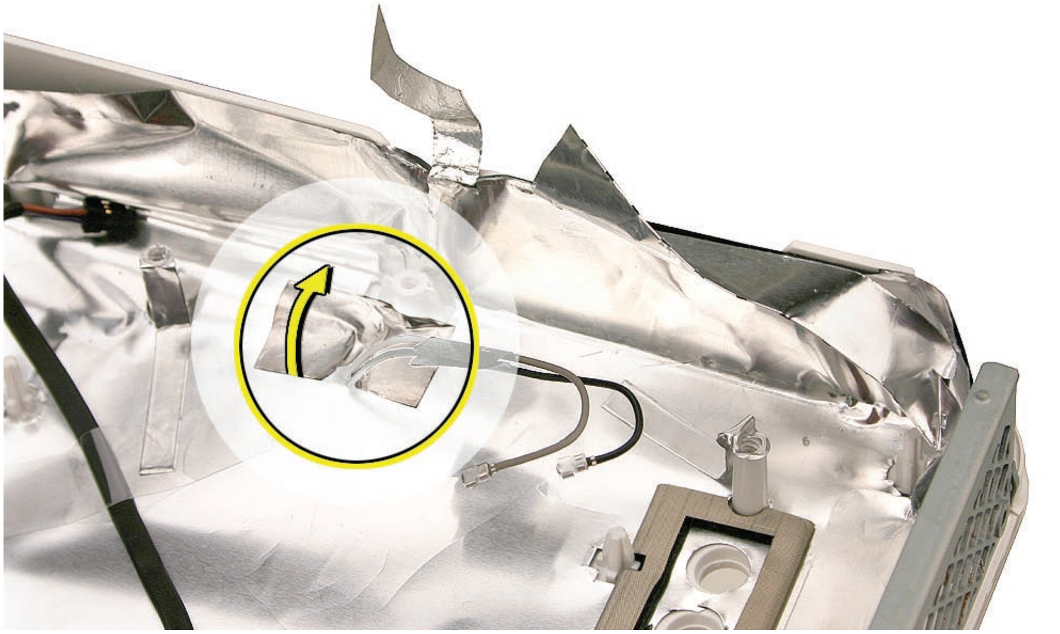
6. Continue to route the antenna cables from underneath the EMI shielding. However, because the shielding runs up the entire right side of the rear housing, you must carefully peel back the right side of the EMI shielding (including the slot-load drive opening).



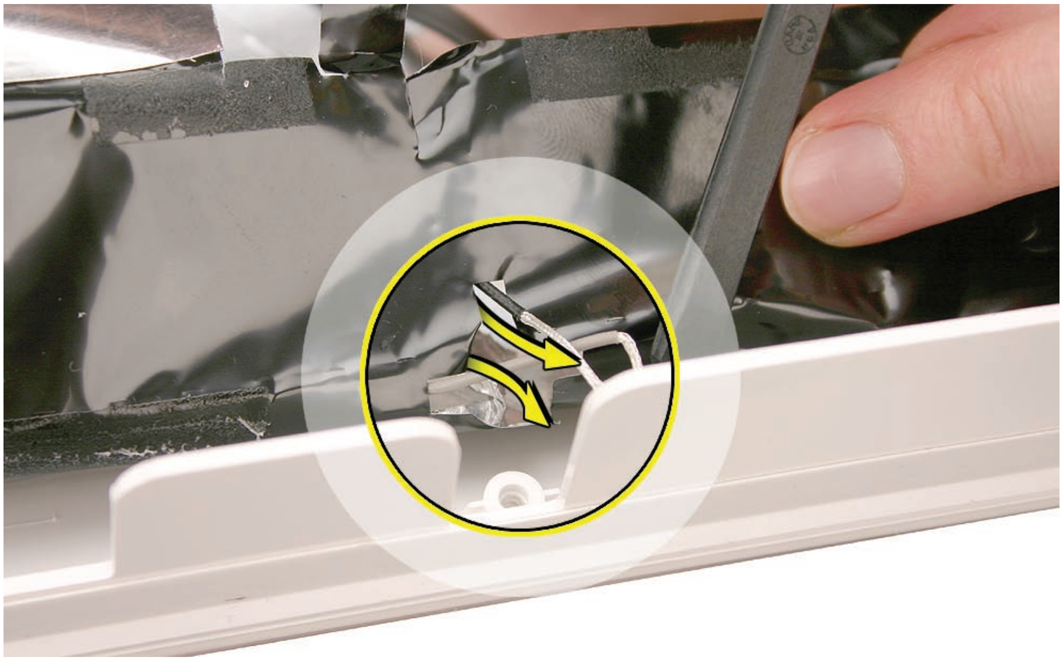
7. Underneath the EMI shielding at the slot-load opening, peel up the two clear strips of tape that secure the antenna cables directly to the rear cover. Do not tug on the cables.



8. Down near the lower right corner where the antenna cables exit the EMI shielding, peel up the single strip of aluminum tape.

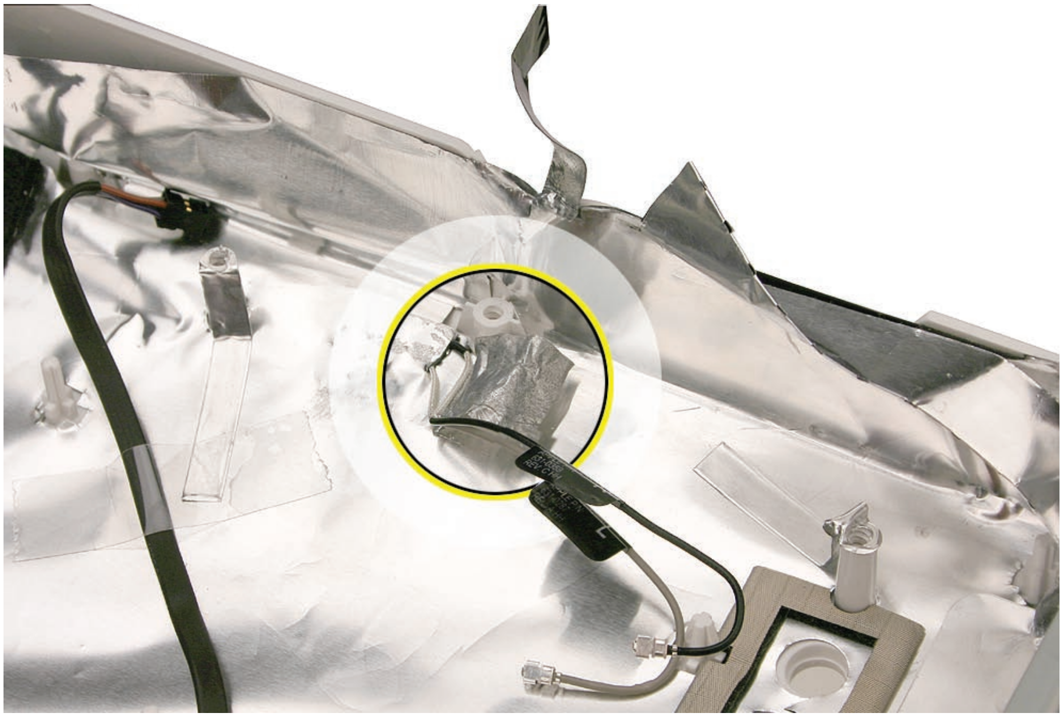


9. At the lower right corner on the underside of the EMI shielding, use a black stick to carefully guide the remaining section of the cables out through the opening in the shielding.



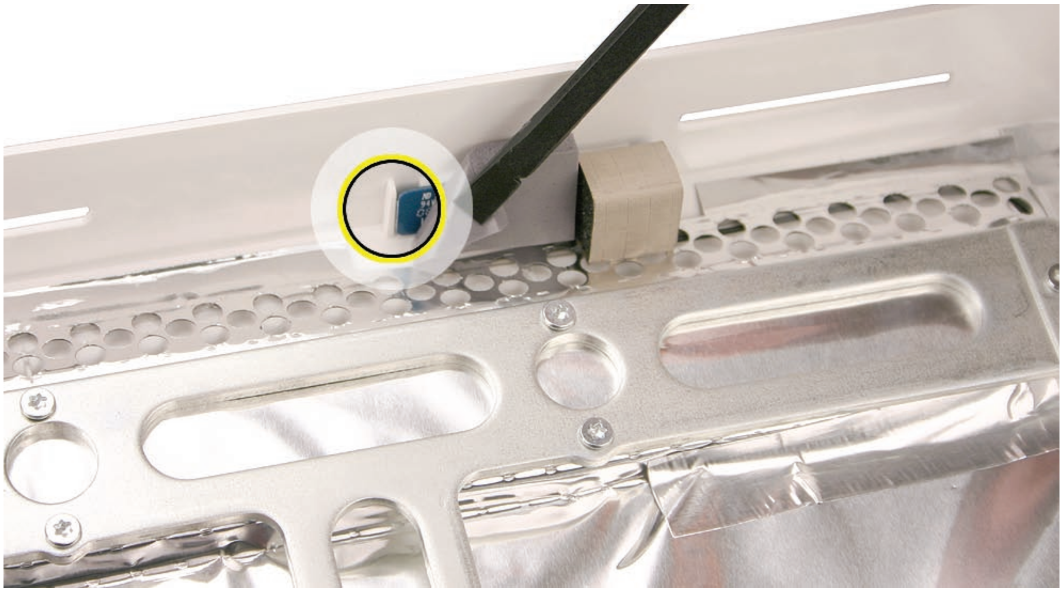
Replacing the AirPort Antennas

1. Insert the antenna connector end of the cables through the opening in the EMI shielding.
2. Secure the noninsulated section of the cables to the EMI shielding with the single strip of aluminum tape.

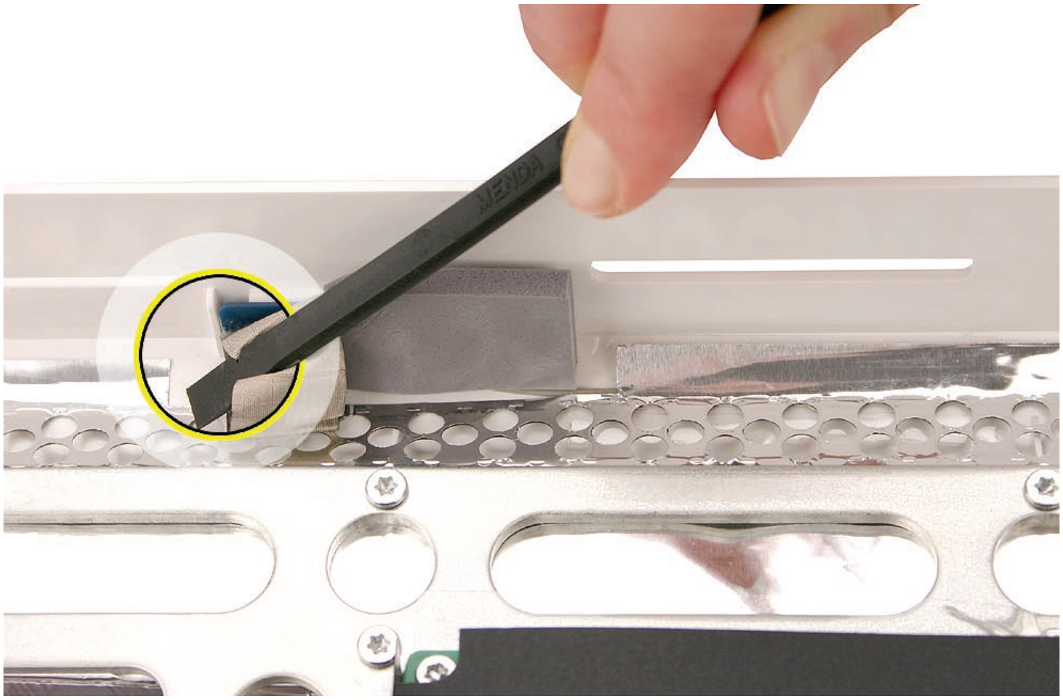


3. Follow the removal instructions in reverse to route the antenna cables up the right side of the rear cover and underneath the EMI shielding.

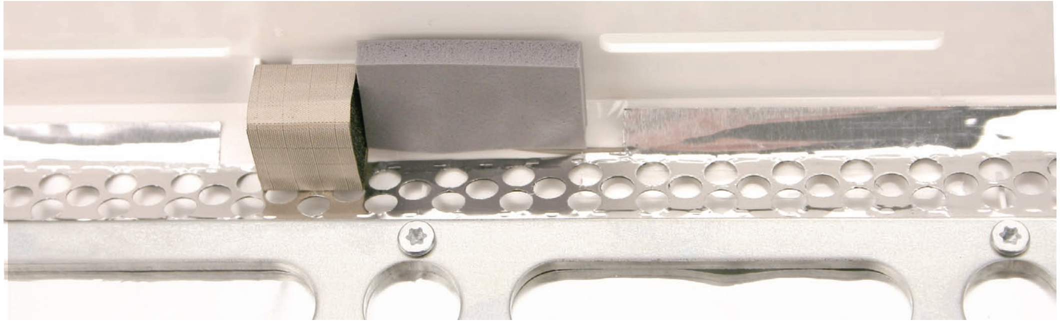
4. When securing the right antenna board, make sure the edge of the board fits directly beside the vertical ridge on the rear cover.

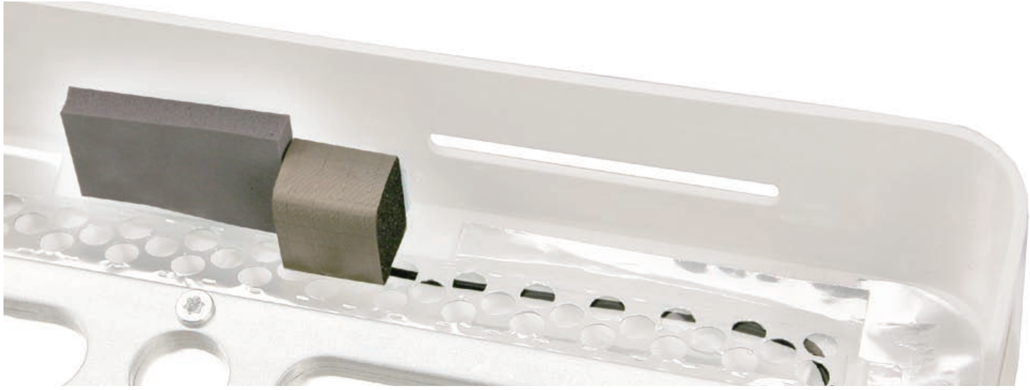


5. When securing the left antenna board, make sure the edge of the board fits directly beside the vertical ridge on the rear cover.



Note: When positioned correctly, the antenna board and gasket area should resemble the following images:





6. Replace the optical fan.
7. Replace the logic board.
8. Replace the right speaker.
9. Replace the optical drive.
10. Replace the display panel.
11. Replace the front bezel.
12. Replace the access door.

Clutch Cover

Tools

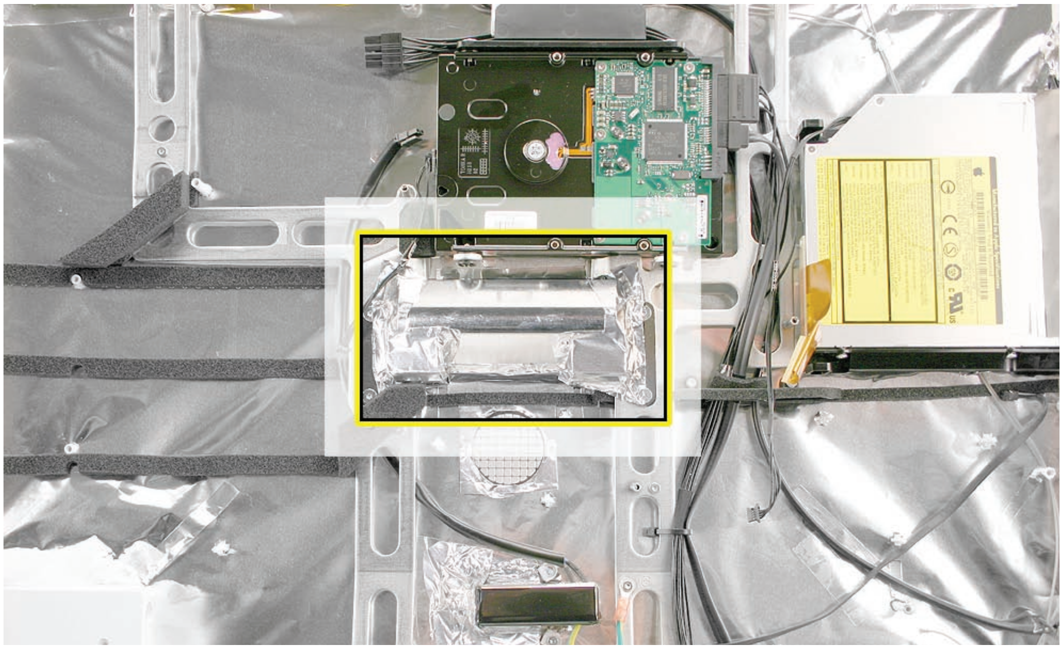
No tools are required for this procedure.

Preliminary Steps

Before you begin, remove the following:

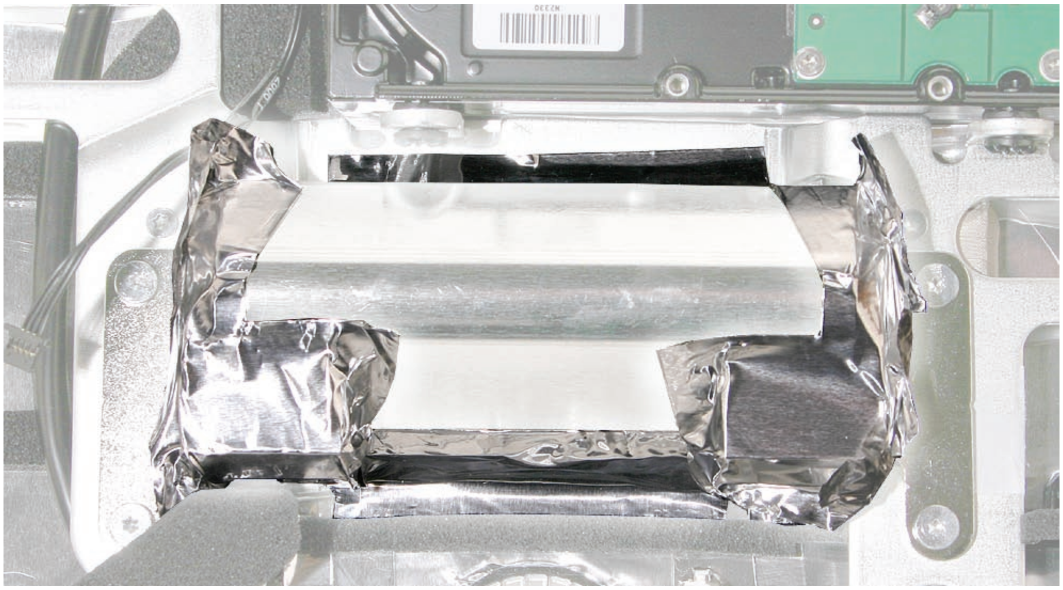
- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Logic board

Part Location

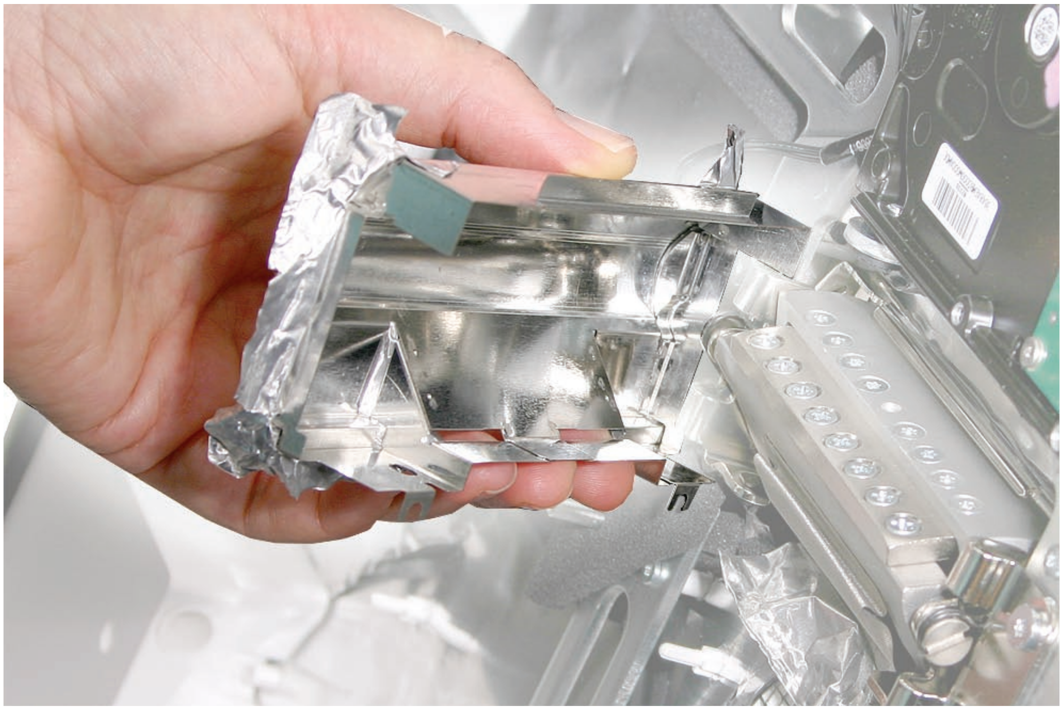


Removing the Clutch Cover

1. Peel up the EMI tape from the top, bottom, and sides of the clutch cover.



2. Lift the cover off of the clutch mechanism.



Replacing the Clutch Cover

1. Replace the metal clutch cover, and make sure the EMI tape holds the top, bottom, and sides of the cover onto the mechanism and rear cover.
2. Replace the logic board.
3. Replace the speaker.
4. Replace the CPU fan.
5. Replace the display panel.
6. Replace the front bezel.
7. Replace the access door.

Clutch Mechanism

Tools

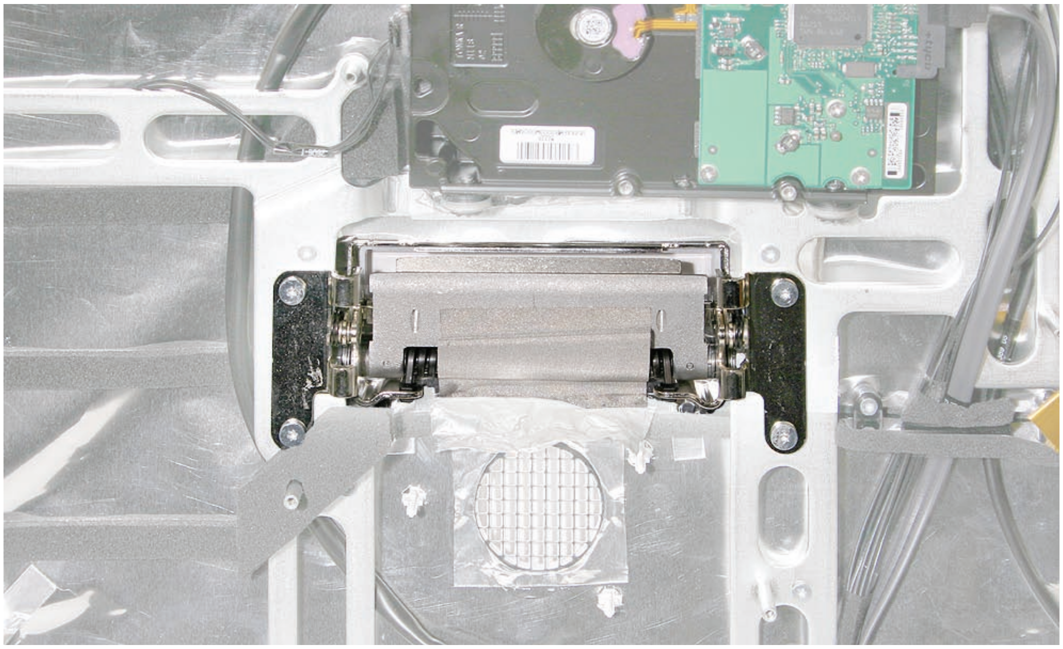
- Torx T10 screwdriver

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Logic board
- Clutch cover
- Stand

Part Location



Removing the Clutch Mechanism

1. Using a torx T10 screwdriver, remove the four clutch mounting screws.

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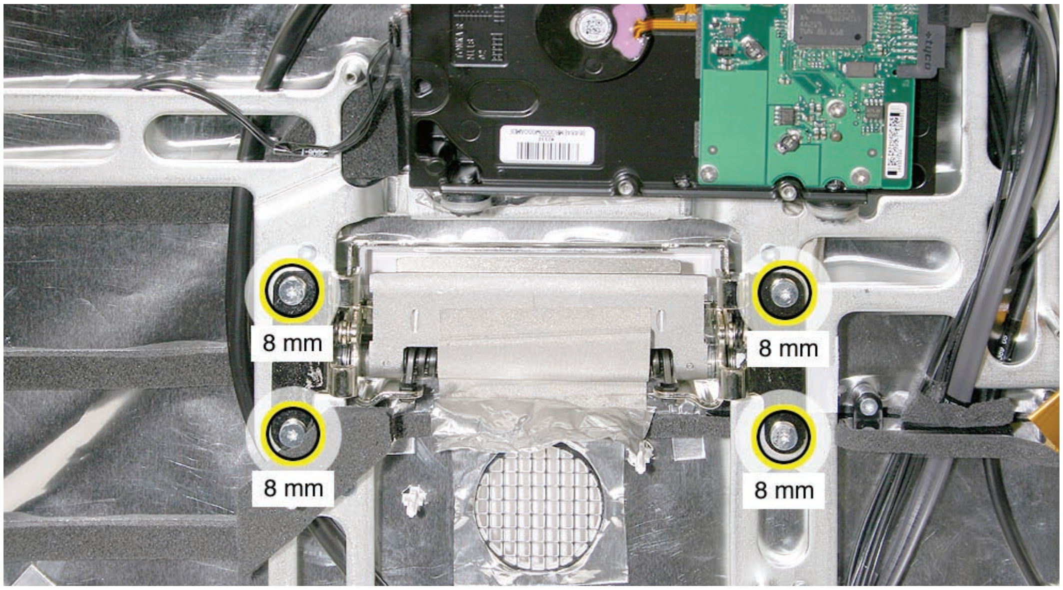
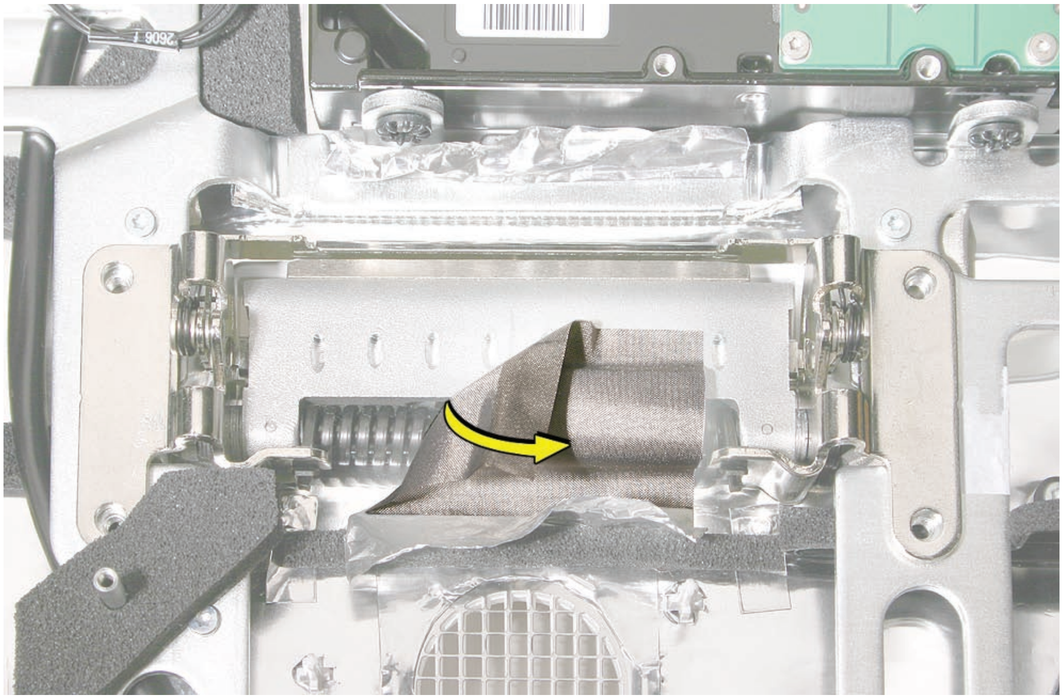
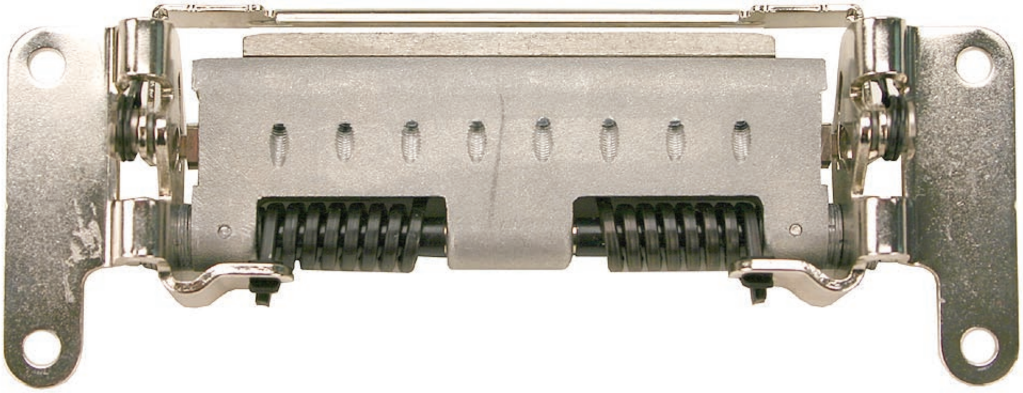
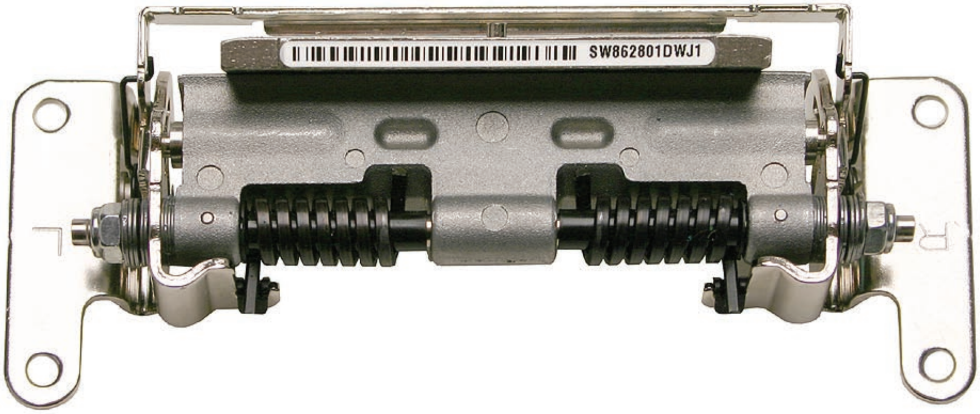


2. Peel back the mesh tape on top of the mechanism.



3. Lift the mechanism out of the rear cover. For your reference, front (top image) and back (bottom image) views are shown below).





Replacing the Clutch Mechanism

1. Make sure the stand is upright, and the end of the stand is inserted through the mounting hole in the rear housing.
2. Position the clutch on the stand, with the clutch springs at bottom. Install the eight long, clutch-to-stand mounting screws.
3. Adjust the clutch so that its chassis mounting holes align, and install the four screws that secure the clutch to the chassis.
4. Replace the mesh tape on top of the mechanism, press it into place.
5. Replace the metal clutch cover.
6. Replace the CPU fan.
7. Replace the logic board.
8. Replace the speakers.
9. Replace the display panel.
10. Replace the front bezel.
11. Replace the access door.

Hard Drive Temperature Sensor

Tools

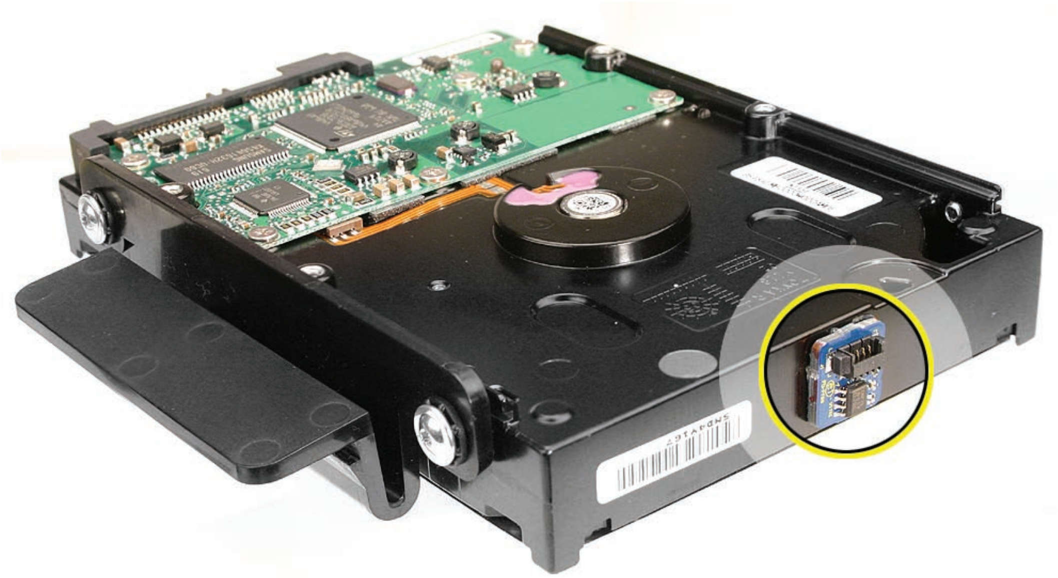
- Torx T10 screwdriver
- Permanent ink felt-tip pen

Preliminary Steps

Before you begin, remove the following:

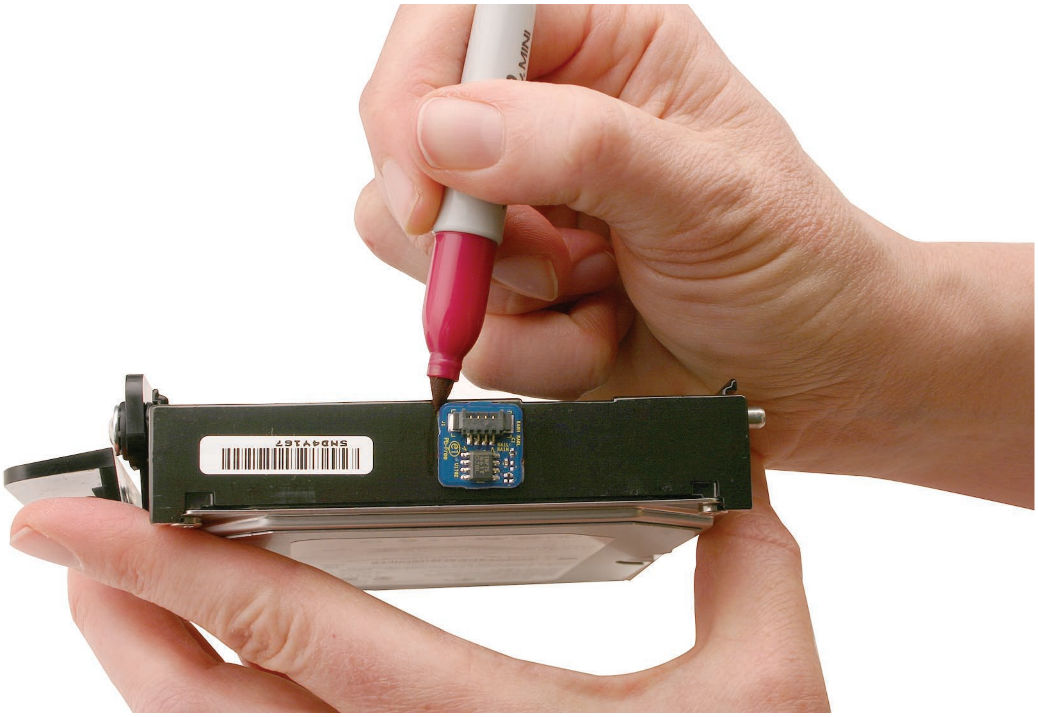
- Access door
- Front bezel
- LCD display panel
- Hard drive

Part Location

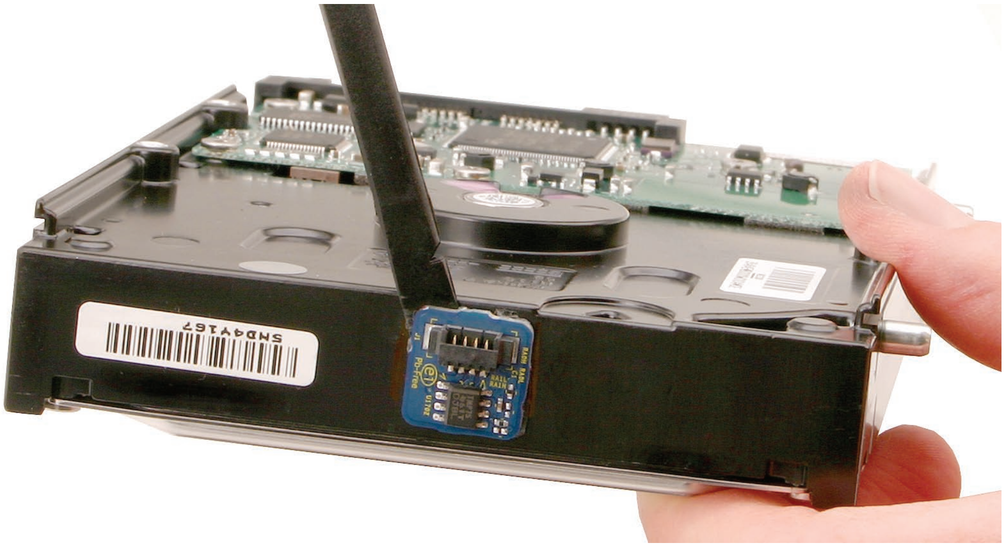


Removing the Hard Drive Temperature Sensor

1. Before removing the temperature sensor, use a permanent ink pen to draw an outline of the sensor location. Refer to that marking when placing the new sensor on the hard drive.



2. Use a black stick to peel up the temperature sensor from the adhesive on the left end of the drive.



Replacing the Hard Drive Temperature Sensor

1. Adhere the new temperature sensor to the hard drive.
2. Install the hard drive.
3. Replace the display panel.
4. Replace the front bezel.
5. Replace the access door.

Power Supply Cable

Tools

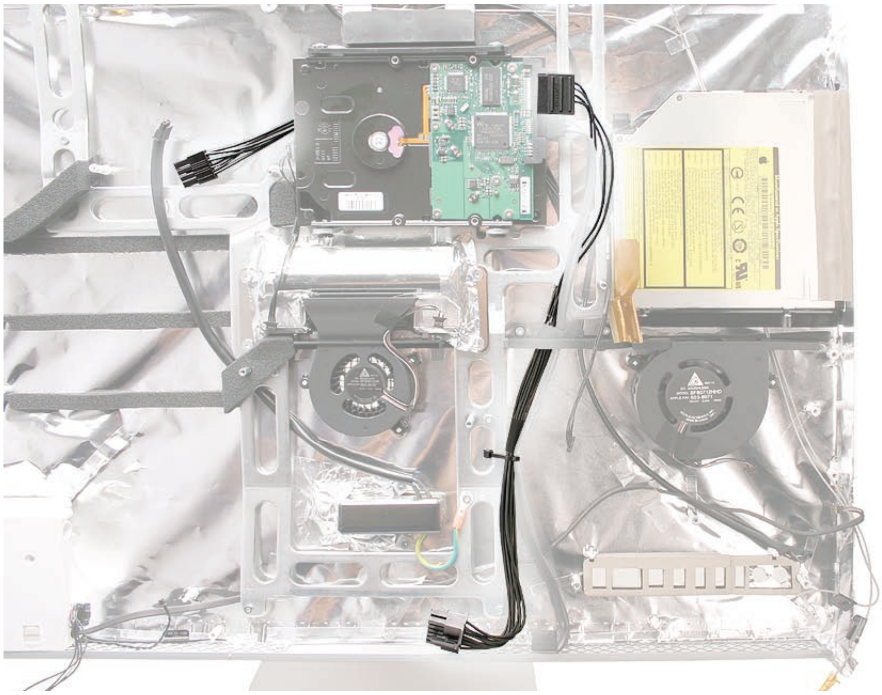
- Torx T10 screwdriver
- Wire cutters

Preliminary Steps

Before you begin, remove the following:

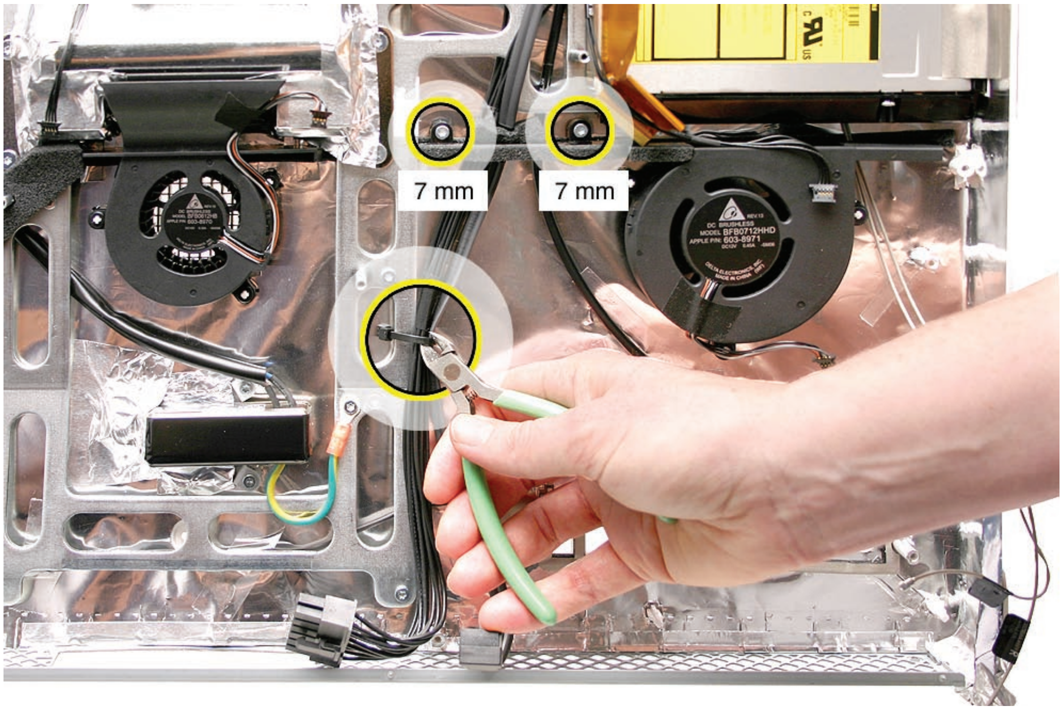
- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Logic board

Part Location

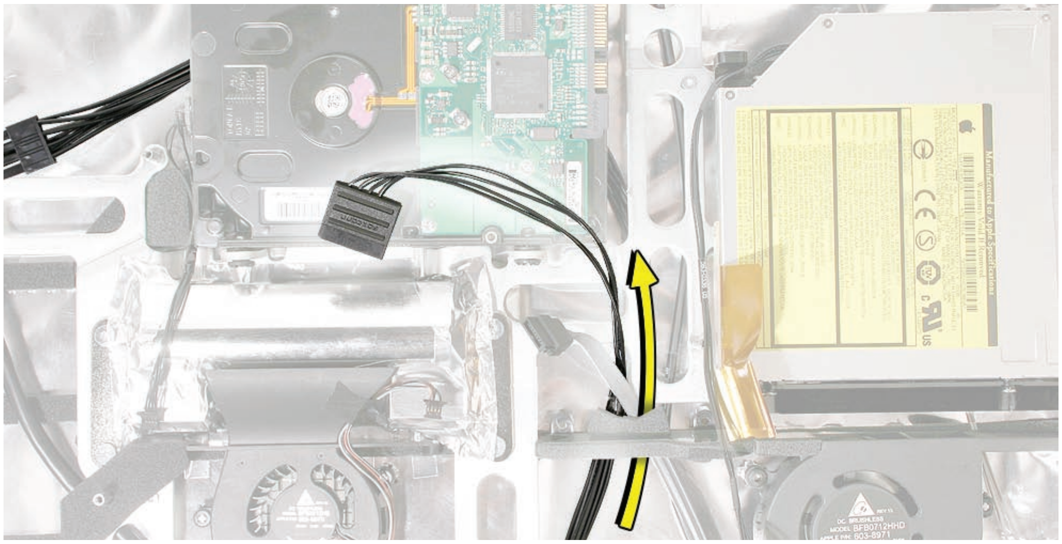


Removing the Power Supply Cable

1. Using a T10 screwdriver, remove the screws from the cable channel, and cut the cable tie.

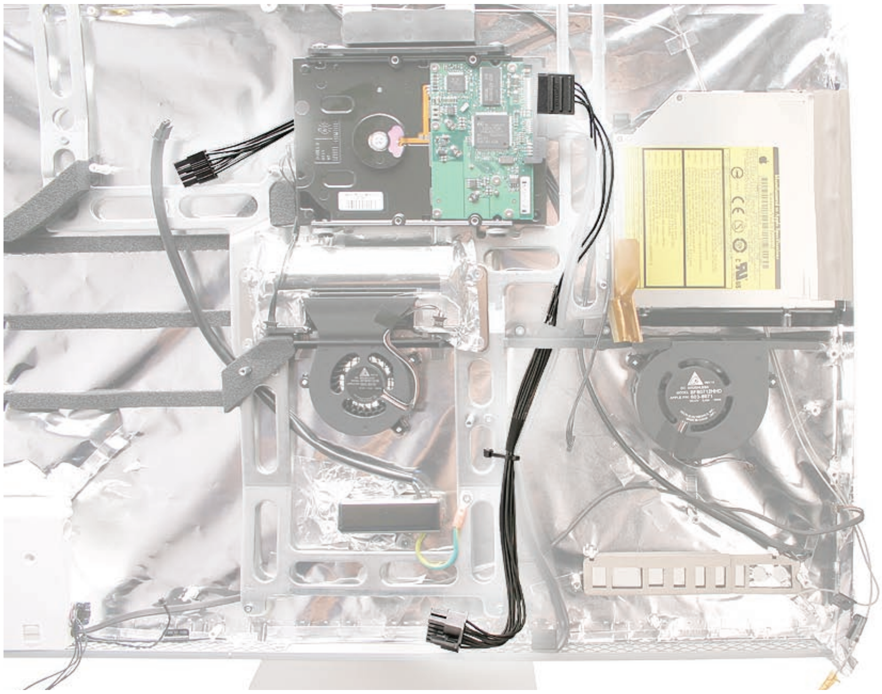


2. Disconnect the power supply cable from the hard drive, and route the cable up through the cable channel and out from under the hard drive.
   Replacement Note: When reinstalling the cable, make sure the end with the hard drive power connector is routed over the chassis, while the end with the power supply connector is routed under the chassis and behind the hard drive.



Replacing the Power Supply Cable

1. Install the power supply cable through the cable channel and chassis, and replace the screws and cable tie.



2. Replace the CPU fan.
3. Replace the logic board.
4. Replace the speakers.
5. Replace the display panel.
6. Replace the front bezel.
7. Replace the access door.

Hard Drive Data Cable

Tools

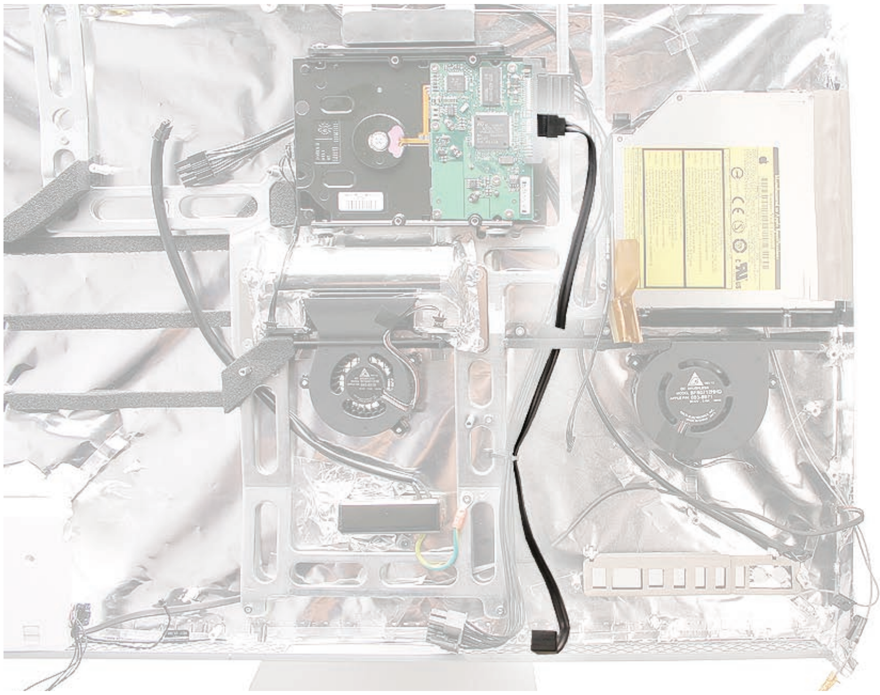
- Torx T10 screwdriver
- Wire cutters

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Logic board

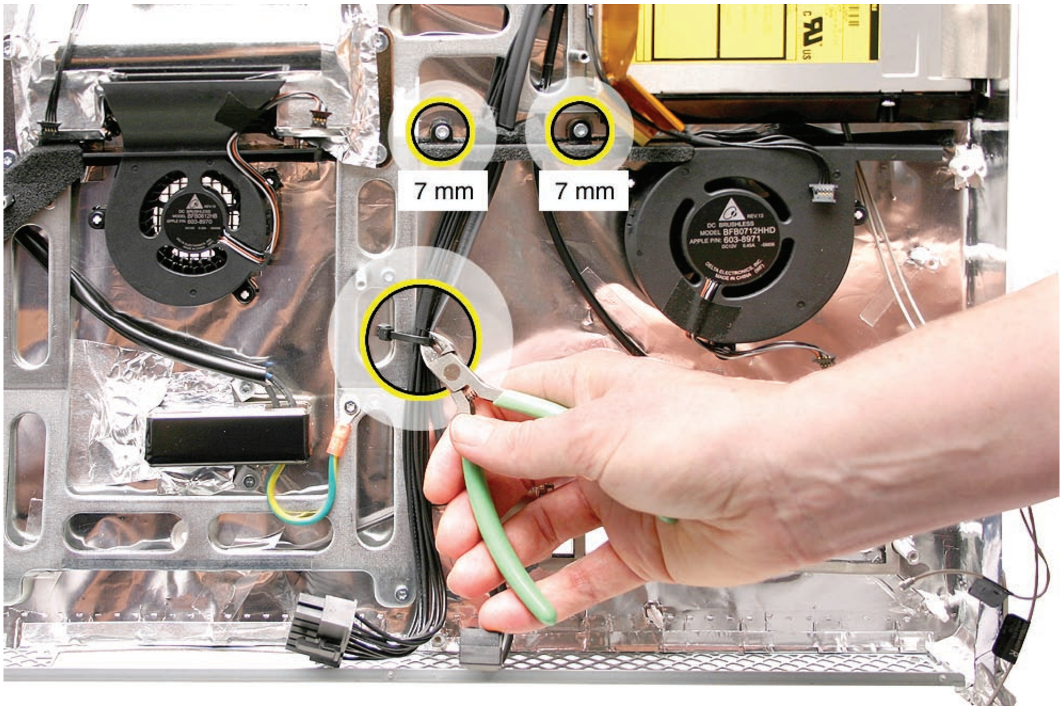
Part Location



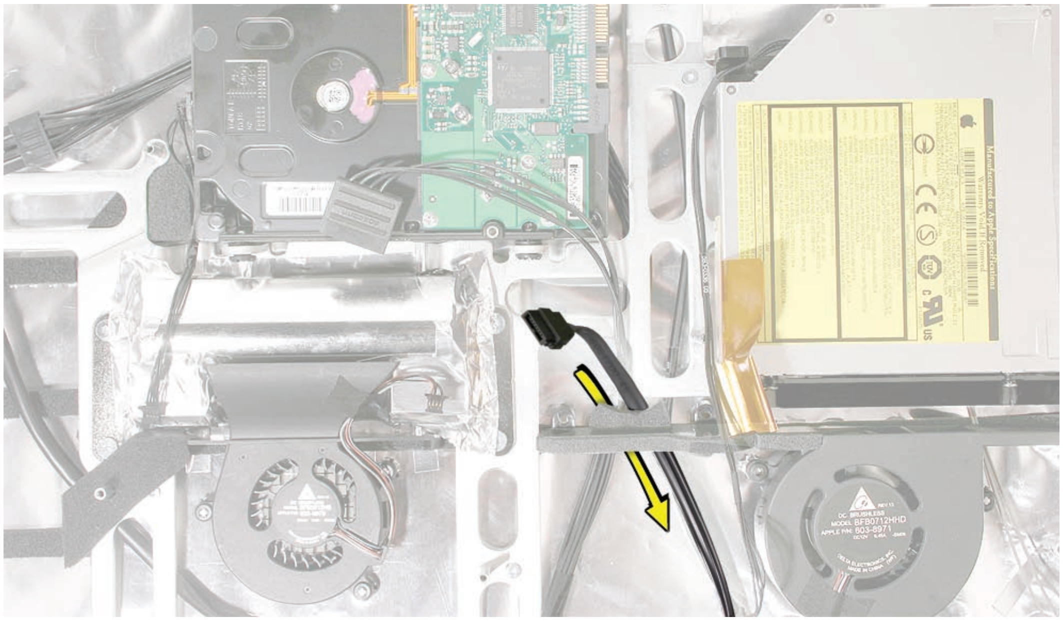
Removing the Hard Drive Data Cable

1. Using a T10 screwdriver, remove the screws from the cable channel, and cut the cable tie.

922-6800

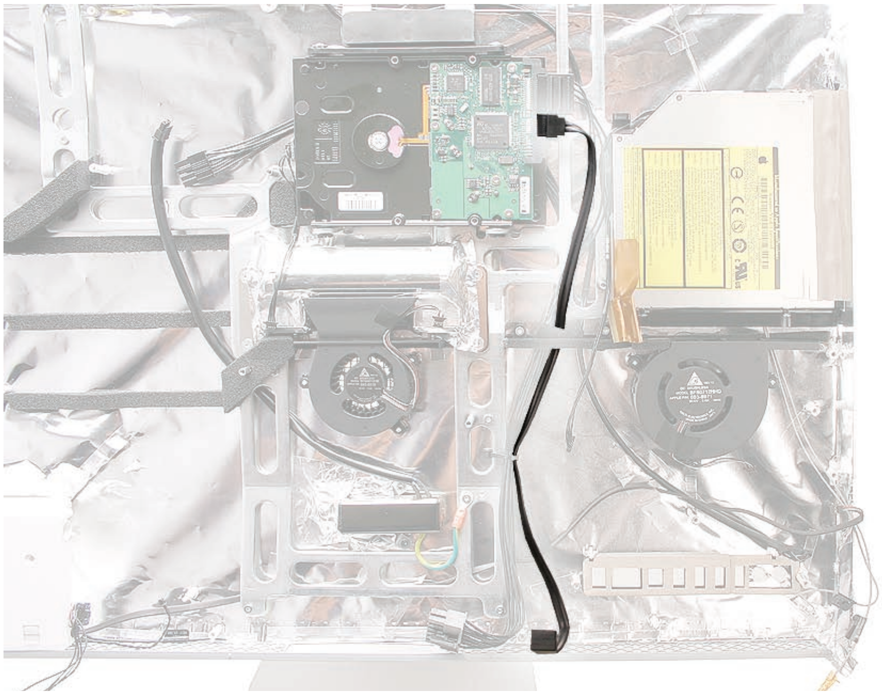


2. Disconnect the hard drive data cable from the hard drive, and route the cable down through the cable channel.



Replacing the Hard Drive Data Cable

1. Install the hard drive cable through the cable channel, and replace the screws and cable tie.



2. Replace the CPU fan.
3. Replace the logic board.
4. Replace the speaker.
5. Replace the display panel.
6. Replace the front bezel.
7. Replace the access door.

Rear Cover

Tools

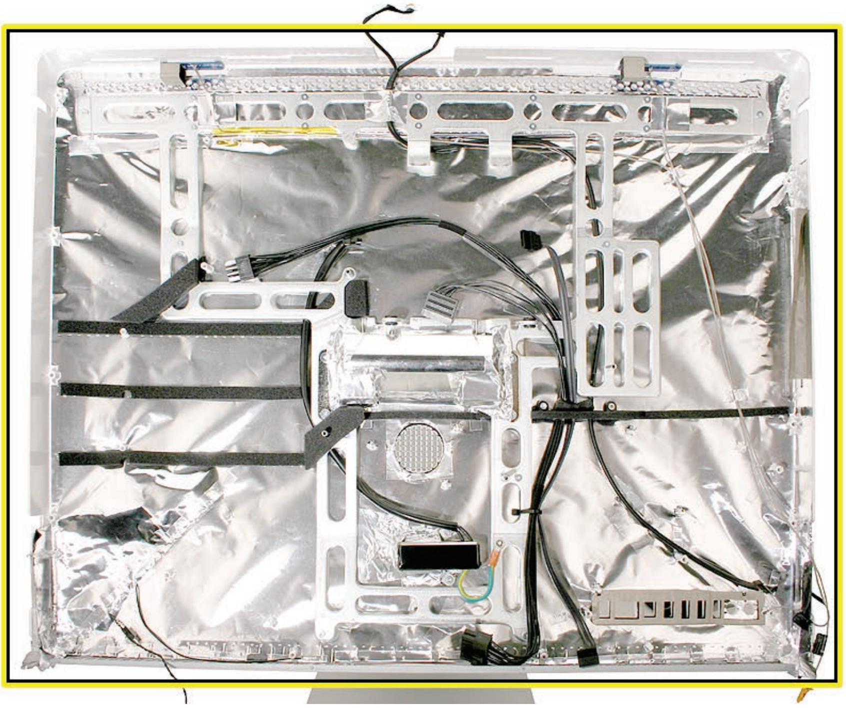
No tools are required to remove the rear cover.

Preliminary Steps

Before you begin, remove the following:

- Access door
- Front bezel
- LCD display panel
- Power supply
- CPU fan
- Speaker, right
- Hard drive
- Optical drive
- Optical fan
- Logic board
- Hard drive fan
- Speaker, left
- Stand

Part Location



Removing the Rear Cover

With all of the preliminary steps performed, the rear cover is the remaining assembly. A replacement rear cover includes:

- EMI shielding
- Bluetooth antenna
- Temperature sensor (not visible and mounted below Bluetooth antenna)
- Power supply cable
- Hard drive data cable
- Camera/microphone cable
- AirPort antennas
- Clutch mechanism
- Clutch cover
- AC inlet
- Gaskets
- Chassis and screws

Replacing the Rear Cover

1. Replace the stand.
2. Replace the clutch.
3. Replace the left speaker.
4. Replace the logic board.
5. Replace the hard drive and optical drive fans (if removed).
6. Replace the optical drive.
7. Replace the hard drive.
8. Replace the right speaker.
9. Replace the CPU fan.
10. Replace the power supply.
11. Replace the display panel.
12. Replace the front bezel.
13. Replace the memory access door.

Stand

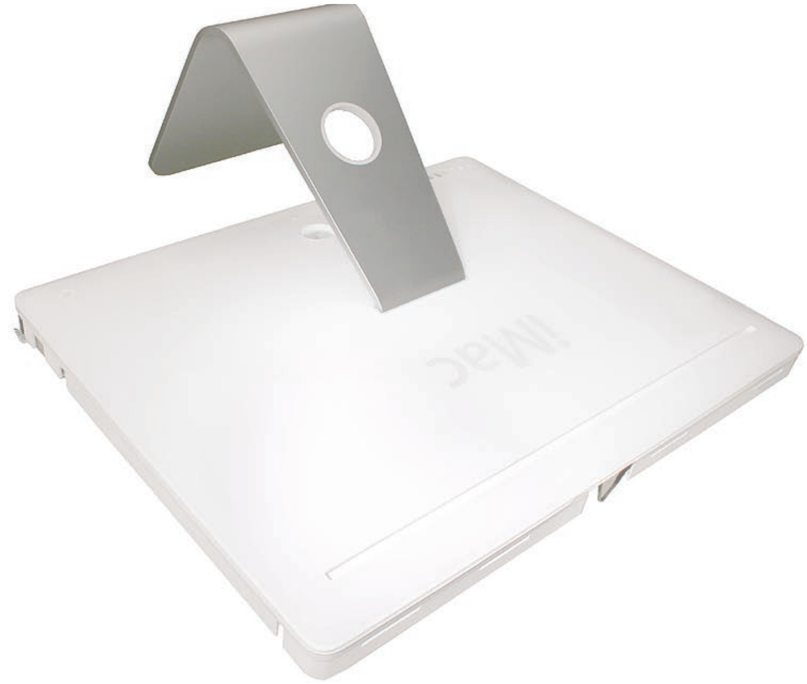
Tools

- Access card
- Torx T10 screwdriver
- Soft, clean cloth

Preliminary Steps

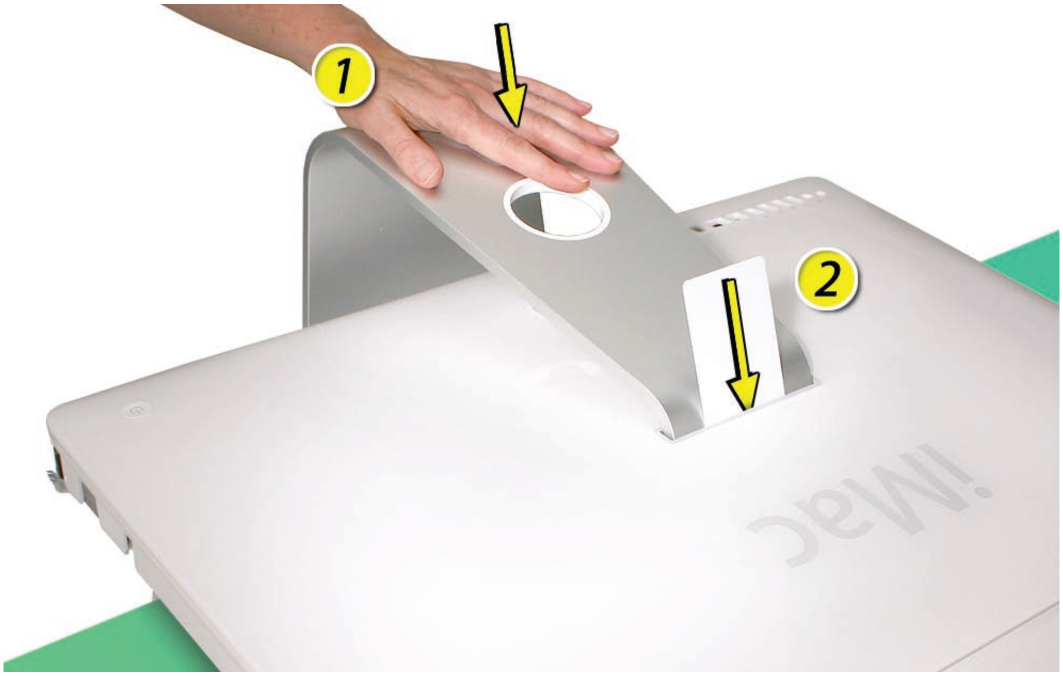
No preliminary steps are required before you begin.

Part Location

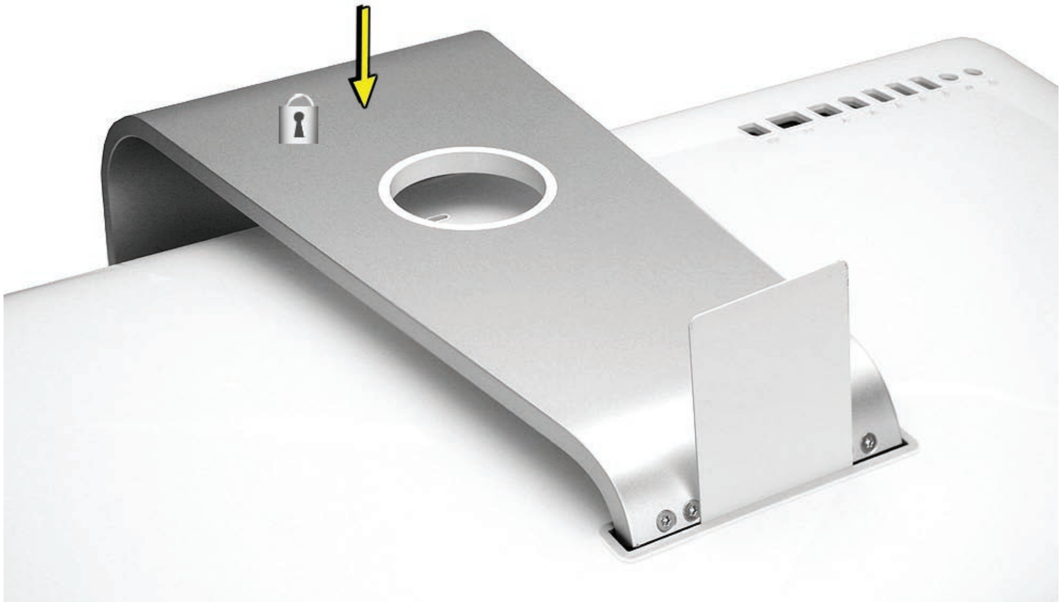


Removing the Stand

1. Place the computer face down on a table so that the base of the stand extends over the table edge. Press the stand down and insert an access card into the slot between the top of the stand and the rear housing.

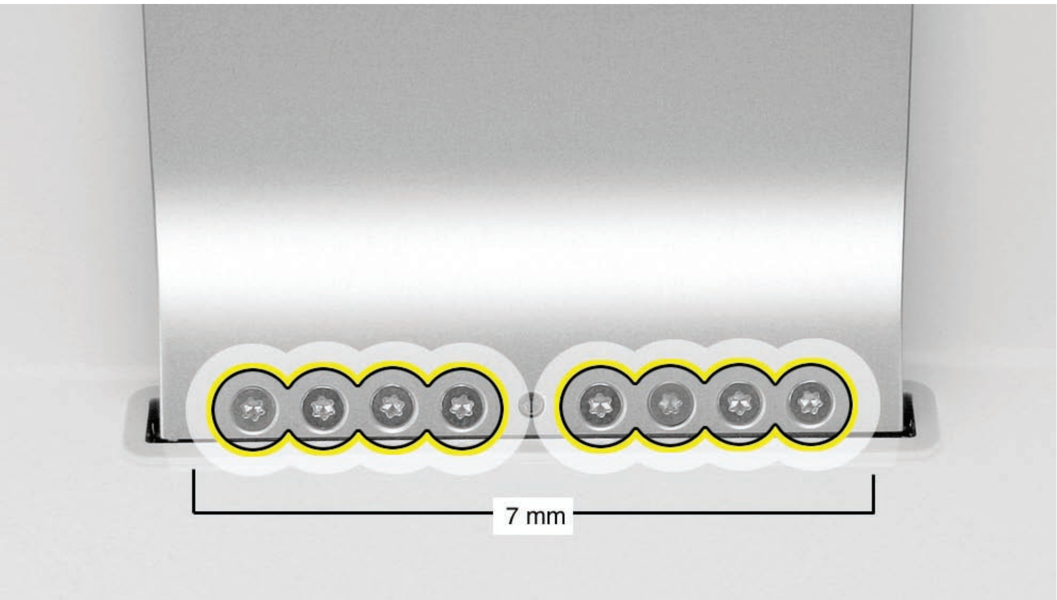


2. Insert the card as far as it will go, and press the stand down until you hear a click—the audible cue that tells you that the stand is locked into place.



3. Remove the access card, and remove the eight T10 clutch-to-stand screws.

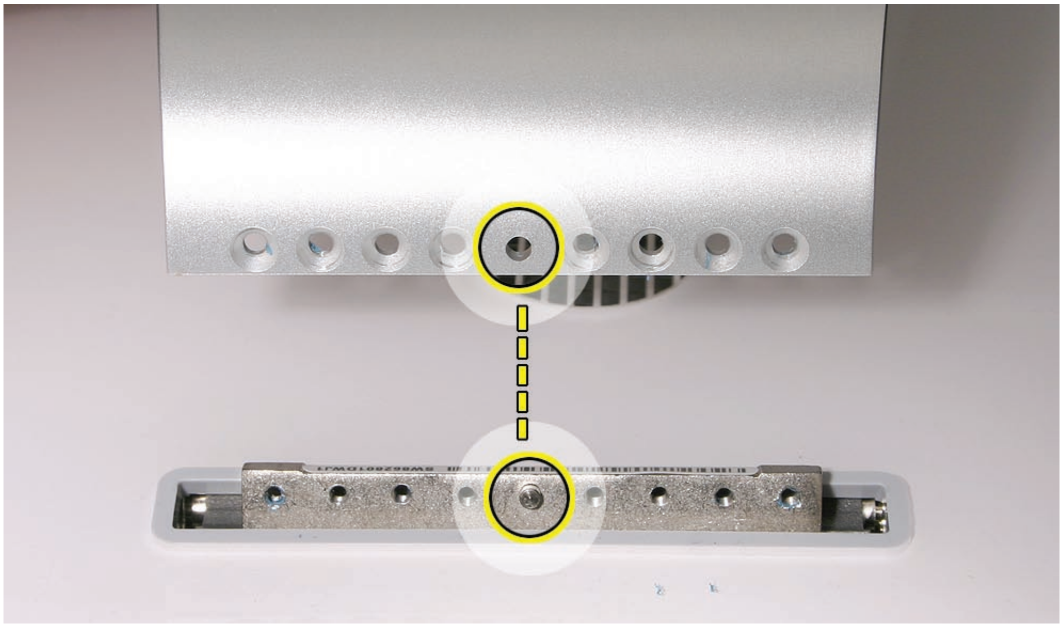
922-7813



4. Separate the stand from the clutch mechanism and rear housing.

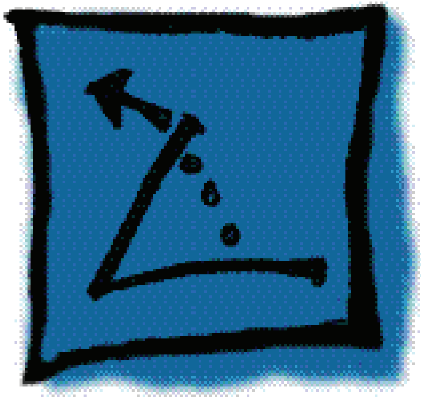
Replacing the Stand

1. Align the pin on the clutch mechanism to the central hole in the stand.



2. Position the stand on the clutch mechanism. Install the eight clutch-to-stand mounting screws.
3. Tilt the stand up to unlock it.

Service Source



Additional Procedures

iMac (24-inch)

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Installing the VESA Mount

Link to Instructions

For instructions on removing the stand and installing the VESA mount adapter, refer to **http://manuals.info.apple.com/en/iMac_24inch_VesaMountAdapter_InstallGuide.pdf**

Retrieving the Clutch Mechanism

Overview

Without a stand or VESA mount installed, the clutch mechanism can retract inside the computer only if an access card trips the latch that locks the clutch mechanism. To prevent this unlikely event, do not insert an access card into the slot on the back of the computer unless instructed to do so. In the rare event that retrieving the clutch mechanism is necessary, follow this procedure.

Tools

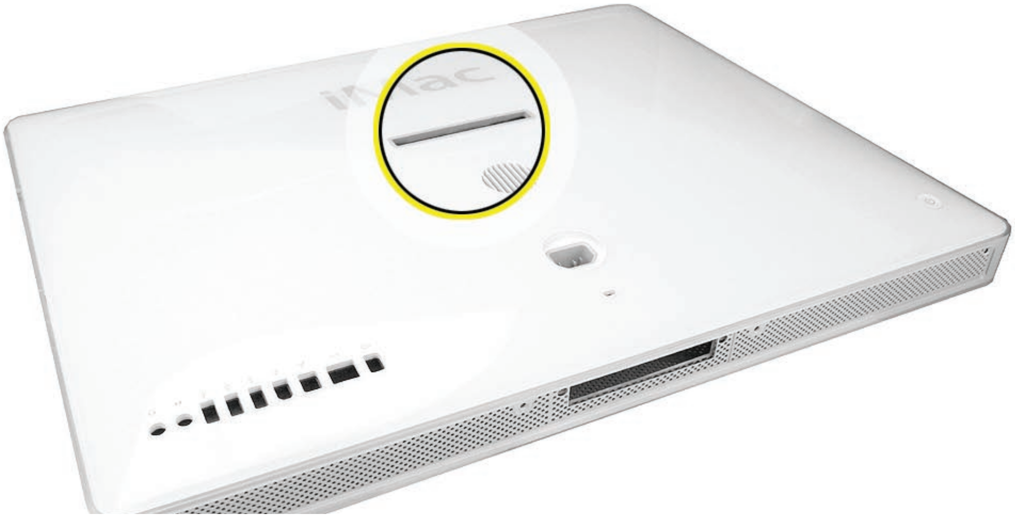
- Access card
- Clutch mechanism retrieval tool (Apple part number 922-7849)
- Scissors
- Soft, clean cloth

Preliminary Steps

No preliminary steps are required before you begin.

Important: This procedure requires firm force to lock the clutch mechanism. If possible, have an assistant hold down the computer assembly as you press in on the latch and pull up on the clutch mechanism.

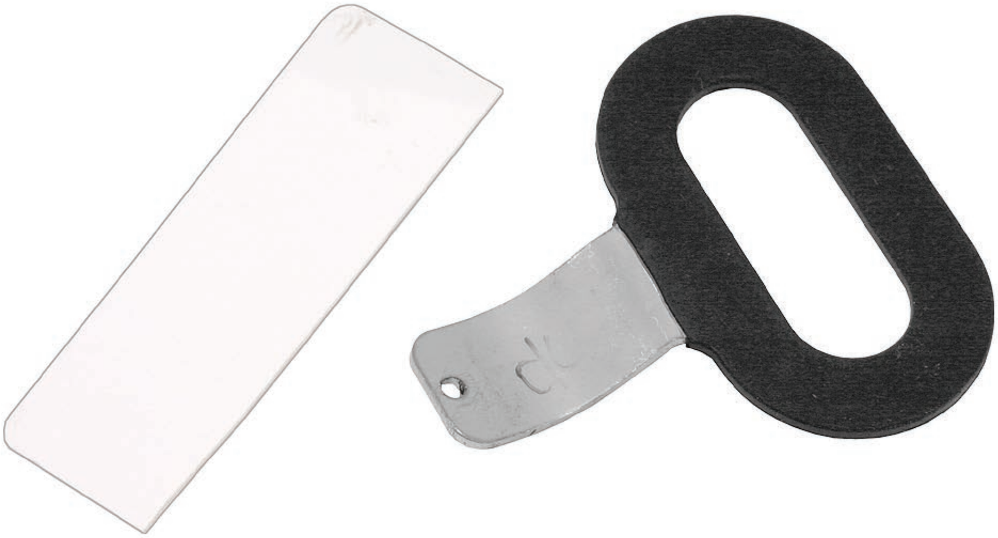
Part Location



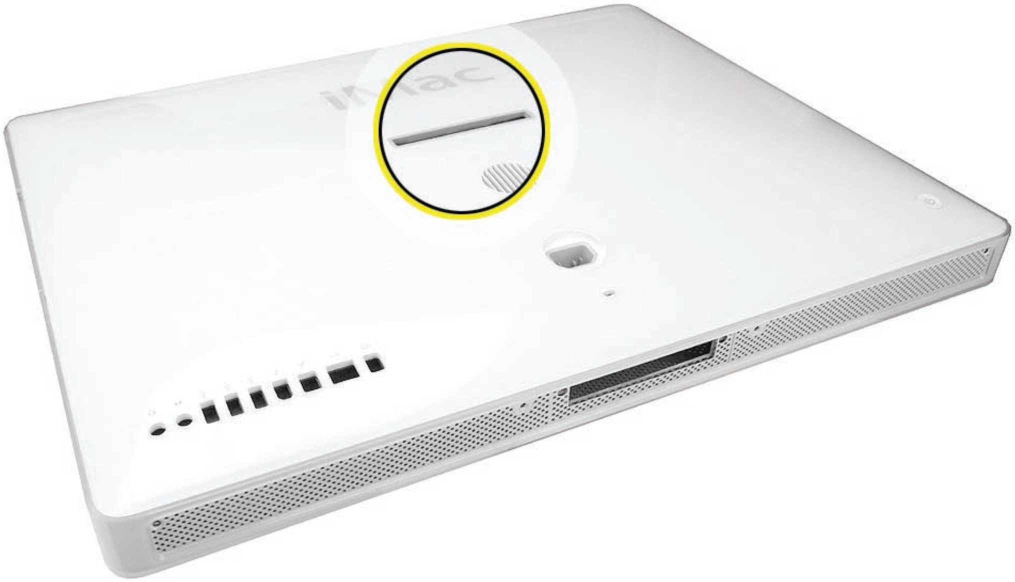
Procedure

1. Cut an access card vertically so that you have two halves of approximately the same size.

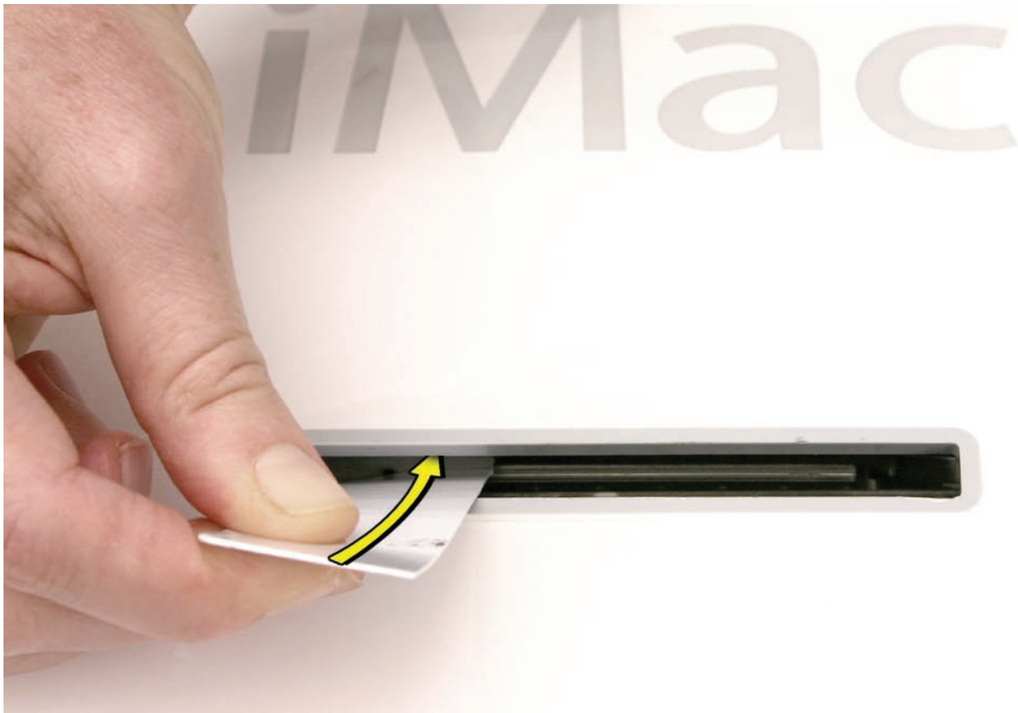
2. Collect the required tools. In addition to a soft cloth, you need one-half of an access card and the clutch mechanism retrieval tool (Apple part number 922-7849).



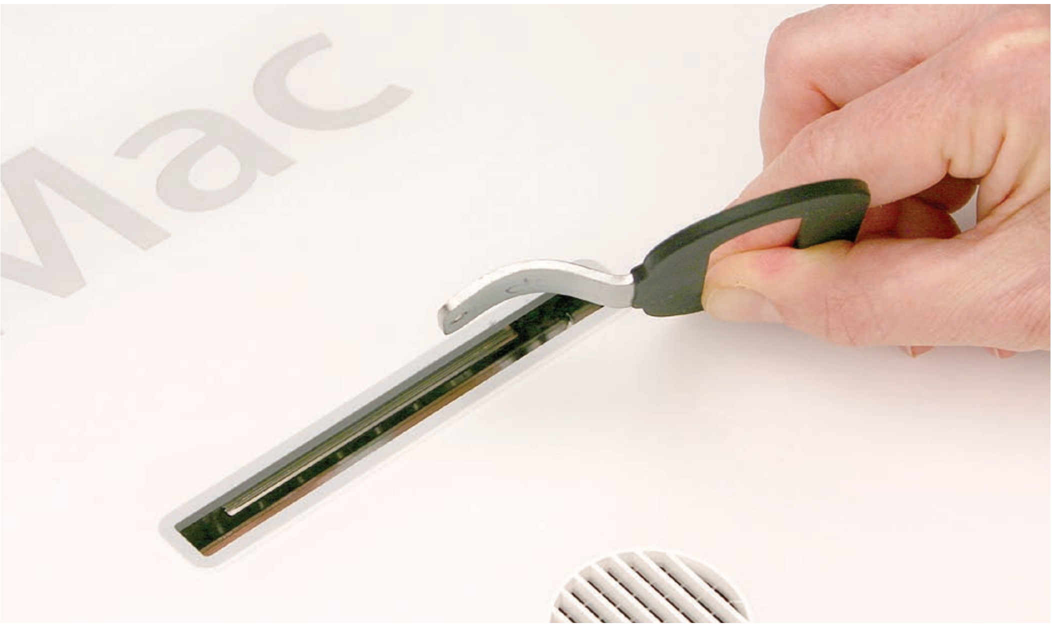
3. Place the computer face down on a soft, clean cloth.
4. Peer into the stand slot so you can see the recessed latch. The latch is a metal spring clip located above the clutch mechanism that is almost as wide as the stand slot..



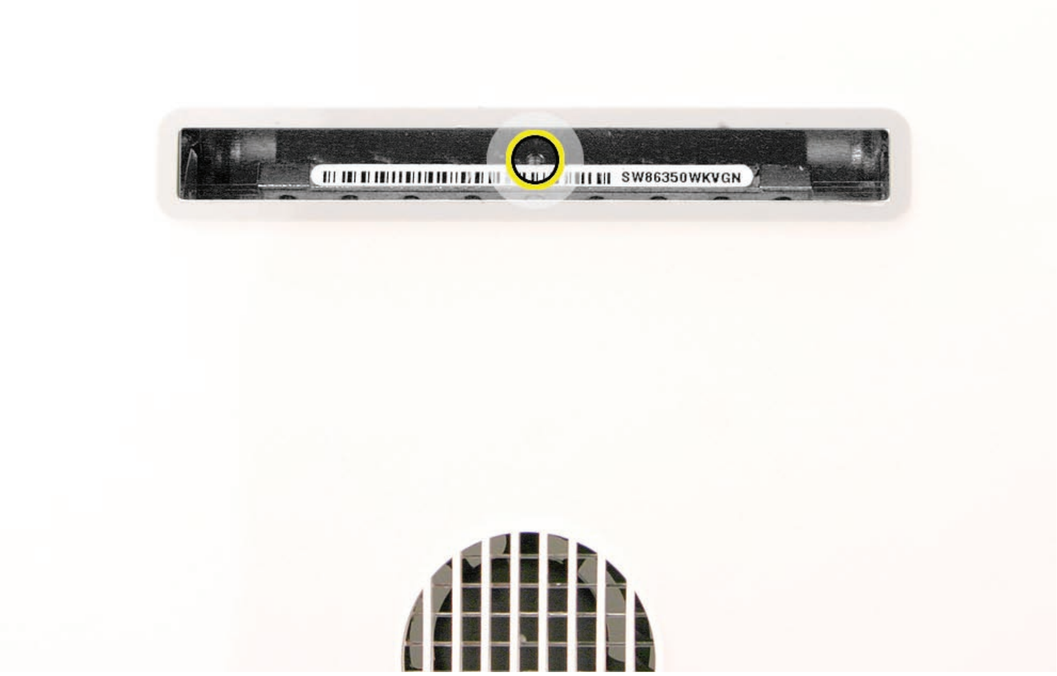
5. Insert the access card into one end of the stand slot and push the latch away from you. (When the latch moves, you feel the moderate resistance of the latch spring.)



6. Now that you can sense how the latch moves, remove the access card and notice the shape of the clutch mechanism retrieval tool.
7. **Important:** When inserting the clutch mechanism retrieval tool, make sure the curved end of the tool is down, as shown.



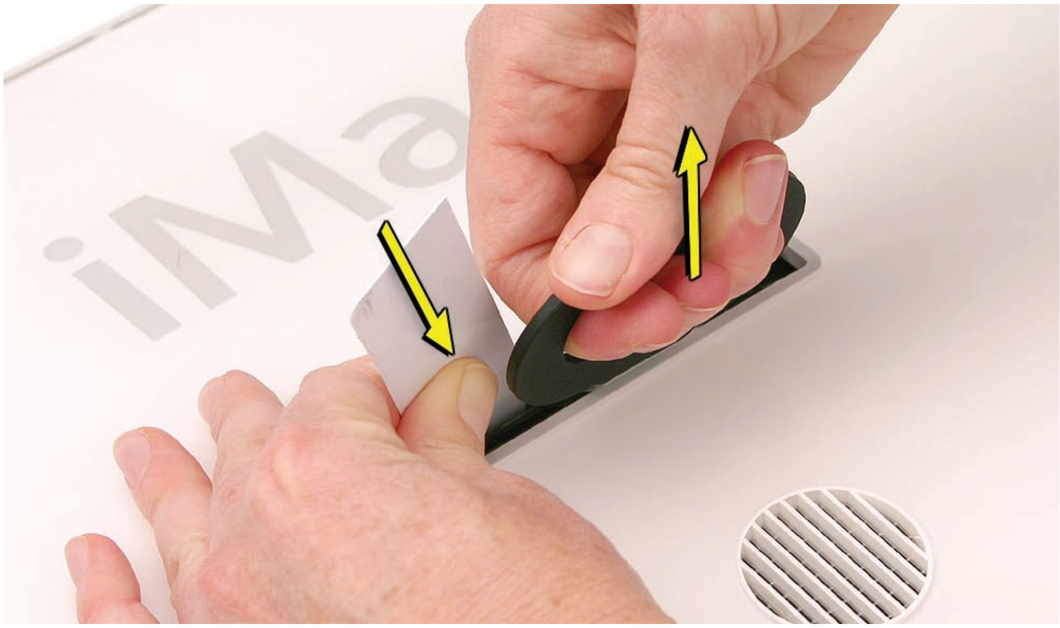
8. Note that the small round opening on the end of the clutch mechanism retrieval tool must hook onto the pin on the recessed clutch mechanism.



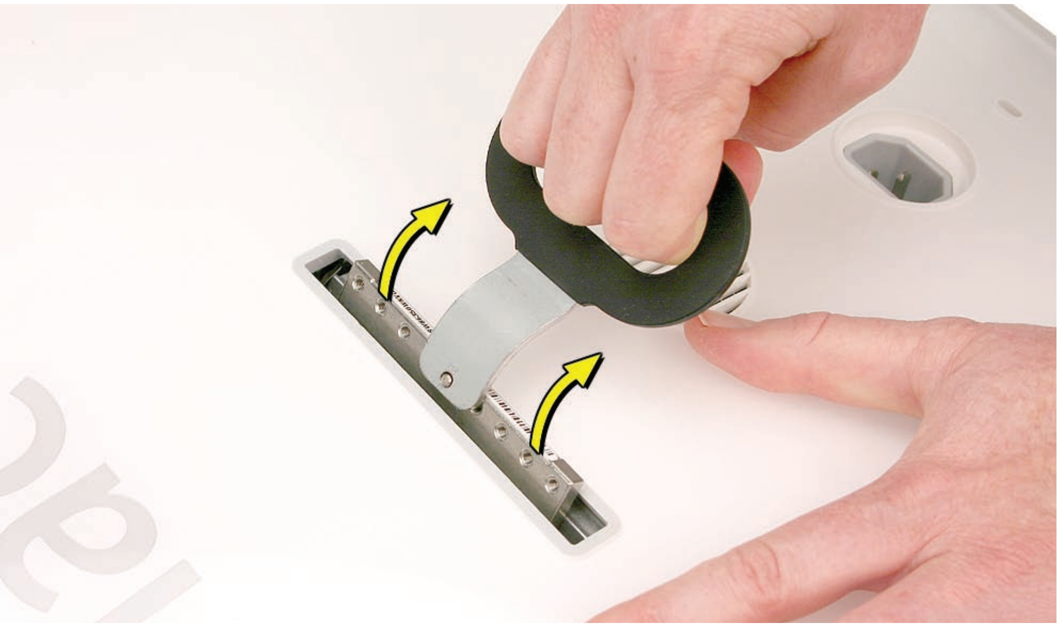
9. Holding the access card so that the latch is pushed away as far as possible, use your other hand to insert the clutch mechanism retrieval tool into the slot.

10. Align the clutch mechanism retrieval tool over the pin on the clutch mechanism until the tool has a firm hold of the clutch mechanism.

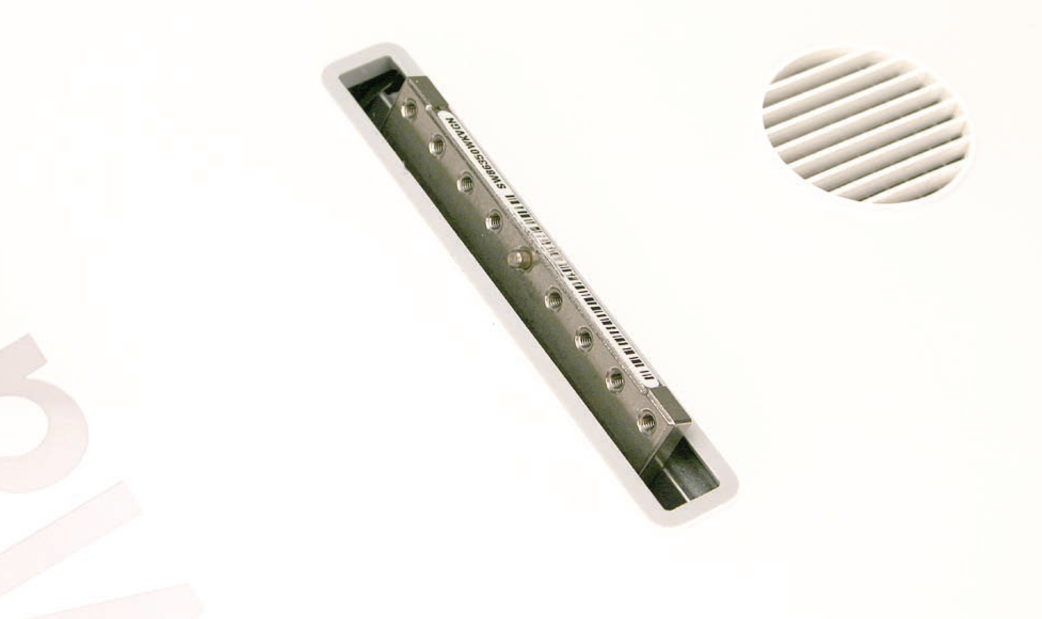
11. If possible, have an assistant firmly hold down the computer as you simultaneously push the latch away and pull the mechanism toward you, as shown below.



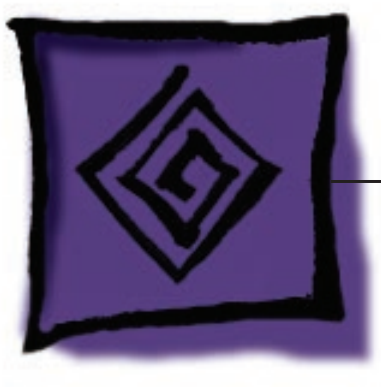
12. When you can pull up the clutch mechanism and easily see it emerge through the slot, maintain the pull force on the clutch mechanism retrieval tool, but remove the access card.
13. With the access card removed, pull up the mechanism the rest of the way.



14. The clutch mechanism is now locked into place and ready to accept the installation of the stand or VESA mount.



Service Source



Troubleshooting

iMac (24-inch)

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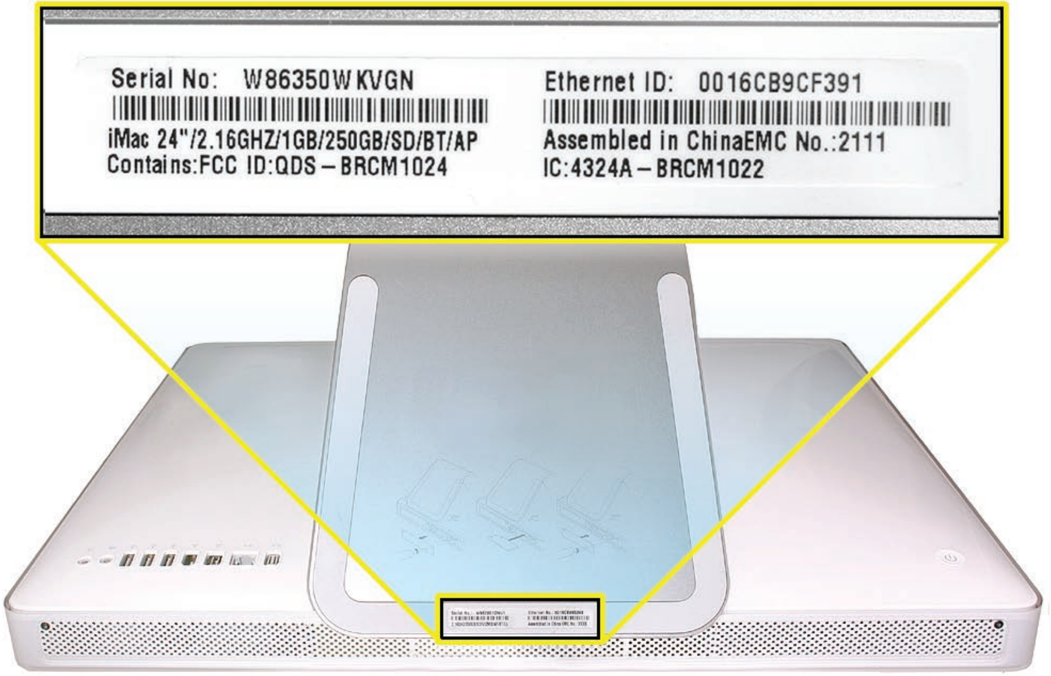
General Information

Serial Number

The serial number for the iMac (24-inch) model is located on the bottom of the computer stand.


Serial No: W86350WKVGN
iMac 24"/2.16GHZ/1GB/250GB/SD/BT/AP
Contains:FCC ID:QDS – BRCM1024
Ethernet ID: 0016CB9CF391
Assembled in ChinaEMC No.:2111
IC:4324A – BRCM1022

Power On Self Test (POST)

Intel-based Mac computers such as the iMac (24-inch) rely on a combination of tones and blinking LEDs to display Power On Self Test (POST) error codes.

- If the computer detects out-of-specification or no SDRAM or the RAM installed does not meet the appropriate specifications, the screen will remain black but the power LED on the front of the computer will blink once per second to signal the error. This error condition may be due to physically damaged RAM, installing the incorrect type of RAM, or not having RAM installed.
- Some RAM may appear to pass the Power-On-Self-Test (POST) but still cannot be used by the operating system. In this case, the computer will display a gray screen, sound three tones and blink the power LED on the front of the computer three times, pause, and repeat the blinking until the computer is turned off.

- The solution to both of these situations is to first re-seat the memory and test the computer again. If the memory fails the POST test again, try memory that has been verified to work correctly on another system (i.e., "known-good") or order new memory.

DDR Memory

The iMac (24-inch) computer has two SDRAM slots in the bottom of the computer. The iMac ships from the factory with at least 512 MB of DDR2 SDRAM installed in the top slot. (The computer may come with more RAM, depending on how the computer was ordered from Apple.)

The maximum amount of RAM you can install in the iMac is 3 GB total. If you install 4 GB, the computer will **recognize** all four gigabytes (as reported in About This Mac or Apple System Profiler); however, **the computer can only support up to 3 GB of the 4 GB installed**. You can use small-outline dual inline memory modules (SO-DIMMS) of 512 MB, 1 GB, or 2 GB that meet all of these criteria:

- PC2-5300
- unbuffered
- nonparity
- 200-pin
- 667 MHz DDR2 SDRAM

Note: DIMMs with any of the following features are NOT supported in this iMac:

- registers or buffers
- PLLs
- ECC
- parity
- EDO RAM

How to Reset the System Management Controller (SMC)

The System Management Controller (SMC) is a chip on the logic board that controls all power functions for your computer. If your computer is experiencing any power issue, resetting the SMC may resolve it. The SMC controls several functions, including:

- Telling the computer when to turn on, turn off, sleep, wake, idle, and so forth.
- Handling system resets from various commands.
- Controlling the fans.

Note that resetting the SMC does not reset the PRAM. Resetting the SMC will not resolve issues in which your computer is unresponsive—in these situations, restarting your computer will generally suffice. If your computer isn't responding, perform these steps one at a time, in this order, until the issue has been resolved:

1. Force Quit (Option-Command-Escape).
2. Restart (Control-Command-Power).
3. Force Shut Down (press the power button for 10 seconds).

Resetting the SMC can resolve some computer issues such as not starting up, not displaying video, sleep issues, fan noise issues, and so forth. If your computer still exhibits these types of issues after you've restarted the computer, try resetting the SMC.

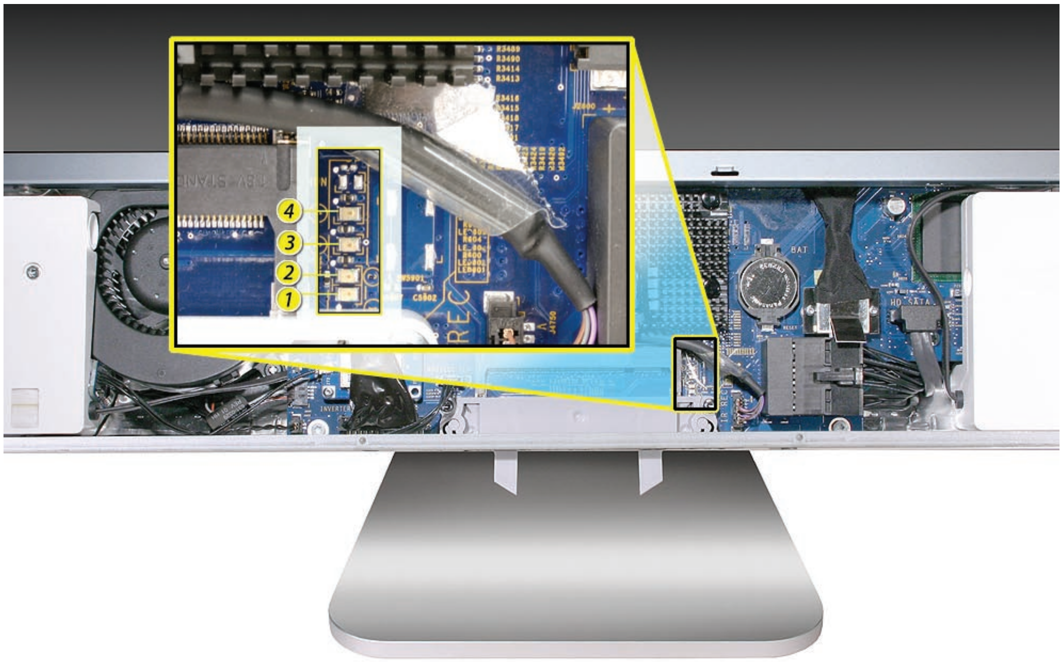
To reset the SMC on an iMac (24-inch)

1. From the Apple menu, choose Shut Down (or if the computer is not responding, hold the power button until it turns off).
2. Unplug all cables from the computer, including the power cord.
3. Wait at least 15 seconds.
4. Plug the power cord back in, making sure the power button is not being pressed at the time.
5. Reconnect your keyboard and mouse to the computer.
6. Press the power button on the back to start up your computer.

Note: The iMac (24-inch) does not have a button on the main logic board for resetting the SMC, which eliminates the need to remove the computer's cover to reset it (as required for some other models).

Diagnostic LEDs

The iMac (24-inch) has four built-in diagnostic LEDs and a front LED on the main logic board that can help you to troubleshoot the computer. The four LEDs are located to the right of the memory slot.



To Access the LEDs:

1. Follow the take apart instructions to remove the memory access door and front bezel.
2. The four troubleshooting LEDs 1, 2, 3, and 4 (numbered bottom to top) are in a column located to the right of the memory slot. Peel back the tape to view the LEDs. An additional front LED is located in an opening at the center of the right speaker.

LED #1

- Indicates that the trickle voltage from the power supply has been detected by the main logic board. This LED will remain ON whenever the iMac (24-inch) is connected to a working AC power source. The LED will remain on even when the computer has been shut down or put to sleep. The LED will turn off only if the AC power source is disconnected or the power supply is faulty.

LED #2

- Indicates that the main logic board has detected proper power from the power supply when the computer is turned on. This LED will be ON when the computer is turned on and the power supply is working correctly.

LED #3

- Indicates that the computer and the video card are communicating. This LED will be ON when the computer is communicating properly with the video card. If LEDs 1 and 2 are ON and you heard the startup sound, but LED 3 is OFF, then the video card might be installed incorrectly or need replacement.

LED #4

- Indicates that the computer and the LCD display are communicating. This LED will be ON when the computer is turned on and video signal is being generated. If the LED is ON and there is no display on the panel, the panel or inverter might be installed incorrectly or need replacement.

Front **LED**

- Indicates that the computer has power but no video signal (e.g., the computer is starting up or the display has entered Sleep mode, turning off the video signal). This LED will pulse when the entire system has entered Energy Saver mode.

Symptom Charts

How to Use the Symptom Charts

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to the product. Because cures are listed on the charts in the order of most likely solution, try the cures in the order presented. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure.

Note: If a cure instructs you to replace a module, reinstall the original module before you proceed to the next cure.

Power Issues

No Power

The computer will not turn on. The display remains black and there are no sounds from the fans or drives.

1. Verify the power outlet is good. Plug a different device into the socket to ensure there is power, or plug the iMac into another outlet. Does the iMac power on now?

    Yes: Resolved. Bad outlet.

    No: Go on to the next step.

2. Check the power cord. Use a known good power cord. Does the iMac power on now?

    Yes: Your power cord has failed. Replace the AC power cord.

    No: Go on to the next step.

3. Check the connection of the power cord on both ends. Verify that the power cord is securely plugged into both the AC outlet and back of the computer. Does the iMac power on now?

    Yes: You may have a loose fit to your power cord. Replace the AC power cord and test.

    No: Go on to the next step.

4. Follow instructions in the General Information chapter to **reset the SMC**. Does the iMac power on now?

    Yes: Issue resolved.

    No: Go on to the next step.

5. **Remove and reinstall the SO-DIMM memory** modules, located in the bottom of the computer. Does the iMac power on now?

    Yes: Issue resolved.

    No: Go on to the next step.

6. Remove the memory access door and front bezel to gain access to the four diagnostic LEDs. See "**Diagnostic LEDs**" in the General Information chapter for complete instructions on this procedure.

7. Plug the power cord into the iMac and the power cord into the AC outlet. Check to see if LED #1 is On or Off.

    LED #1 is On: This indicates that the power supply is getting good power from the AC outlet. Go on to the next step.

    LED #1 is Off: This indicates that the computer is not detecting AC power. If both the AC outlet and the power cord are good, replace the power supply. If the issue persists, replace the AC line filter.

8. Press the power button. Check to see if LED # 2 comes On, comes on momentarily, or stays Off.

LED # 2 is On: The Power Supply is functioning. Go on to the next step.

LED # 2 comes on momentarily or stays Off: Replace the Power Supply.

9. At this point in the Power On process, you should hear a boot chime and see that LED #1 and #2 are On. Do you hear a boot chime?

Yes: The power systems of the computer are working correctly. See "Troubleshooting No Video" in this chapter.

No: The logic board is not passing the Power-On Self Test (POST). Replace the SDRAM with known-good memory and test. If the issue persists with known-good SDRAM, replace the logic board.

No Video

No Video, No Boot Chime, White LED ON (Symptom 1)

The computer will turn on (indicated by the front LED ON), but there is NO boot chime and No Video on the display. The faint sound of the fans, hard drive, and optical drive may also be heard.

1. Follow instructions in the "General Information" chapter to **reset the SMC**. Does the computer display video after successfully resetting the SMC?

Yes: Problem solved.

No: Continue to next step.

2. Verify that only supported SDRAM memory has been installed and that it has been installed correctly. Unsupported and/or defective memory can prevent the computer from booting. It may be necessary to install known good memory for testing purposes and replace any unsupported or defective SO-DIMM's identified during this process. Does the computer display video after verifying and/or replacing the memory with known good memory?

Yes: Problem solved. Verify full system functionality before return the system to the customer.

No: Replace the logic board.

No Video, Boot Chime heard, White LED ON (Symptom 2)

The computer will turn on, the boot chime can be heard, a white LED appears on the front bezel and sounds from the fan or drive activity can be heard, but the display has no picture or color.

1. Check if the computer is sleeping. Press the space bar to wake the computer from sleep mode. Did the computer wake from sleep?

Yes: Put the computer to sleep from the Apple menu and wake the computer again to test. Check Energy Saver setting to see when the computer has been designated to sleep.

No: Continue to next step.

2. Reset your computer's PRAM (Parameter RAM):

- If your iMac is on, turn it off by holding the power button until the unit powers off. You should hear the fans go quiet.
- While the computer is off, with your left hand, hold down the Apple key, the Option key next to it, and the letter "R" key on the keyboard. When you have these keys all pressed down, push the power button with your right hand and then quickly move that hand to hold down the letter "P" on the keyboard. Keep these four keys pressed while the computer starts up.
- Make sure you hold down the four keys (P - R - Apple - Option) while the computer is starting up. When you hear the computer's start up chime for the second time, you can let go of the keys on the keyboard.
- If you didn't hear at least two startup chimes, go to the top of this section and begin again. It's important that you hear two startup chimes when performing this procedure. This indicates that you have successfully reset the computer's PRAM (Parameter RAM).

3. Does the computer display video after successfully resetting the computer's PRAM?

Yes: Restart the computer from the Apple menu and make sure the computer is now working correctly.

No: Continue to next step.

4. Make sure the machine is powered off, and remove the access door and front bezel to access the diagnostic LEDs. Plug in and start up the computer to observe the diagnostic LEDs. At this point in the Power On process, you should hear a boot chime, and LED #1 and #2 are On. Is LED #3 On or Off?

LED # 3 is On: The video card and logic board are communicating properly. Go to the next step.

LED # 3 is Off: The video card and logic board are not communicating. Replace the video card. If the issue persists, replace the main logic board.

5. LED #4 should be On when the video card and LCD display have communicated properly to produce a video image. Is LED #4 On or Off?

LED # 4 is On: The video card and LCD display have communicated to LCD video. In this case, there is a problem with the backlights in the panel or the inverter. Replace the LCD display which replaces both the backlights and the inverter.

LED # 4 is Off: The video card and logic board are unable to communicate to generate video. Replace the video card. If the issue persists, replace the LCD display.

6. Unplug the iMac and remove the SDRAM. Replace with known good SDRAM. Plug the iMac back in and power the unit on. Does the front LED go off after a few moments now?

Yes: Replace the original SDRAM and test again. If the front LED does not go off with the only the original SDRAM installed, replace the SDRAM. If the LED is now reliably going off after a few moments, but yet you still do not have any video, go to step 7.

No: If the LED remained on, the main logic board is not communicating with the LCD panel to generate video. Replace the main logic board.

7. If video is displayed normally on an external display but not on the iMac internal display panel, replace the LCD display.

Display is tinted another color.

1. Reset the parameter RAM. Press the Command-Option-P-R keys. When you keep all the keys held down, you will hear the startup chime over and over again (about every ten seconds) until you let go. After you hear the second chime, you can let go of the keys.
   Does the computer display video after successfully resetting the computer's PRAM?
   Yes: Problem resolved. Restart the computer from the Apple menu and make sure the computer display is no longer tinted another color.
   No: Continue to the next step.

2. Connect an external monitor to the mini-DVI port. Does the external display exhibit the same color tinting?
   Yes: Replace the video card.
   No: Check the LVDS cable connections. If connected properly and the same color tinting persists, replace the LVDS cable. Does color tinting persist after changing the LVDS cable?
      Yes: Replace the LCD display panel.
      No: Problem solved. Restart the computer from the Apple menu and make sure the computer display is no longer tinted another color.

Display

When displaying a single color over the screen area, the LCD panel shows one or more pixels that are not properly lit.

Active-matrix LCD technology uses rows and columns of addressable locations (pixels) that render text and images on screen. Each pixel location has three separate subpixels (red, green, and blue) that allow the image to be rendered in full color. Each subpixel has a corresponding transistor responsible for turning the subpixel on or off.

There are typically millions of these subpixels on an LCD display. For example, the LCD panel used in the Apple Cinema HD display is made up of 2.3 million pixels and 6.9 million red, green, and blue subpixels. Occasionally, a transistor does not work perfectly, which may result in the affected subpixel being turned on (bright) or turned off (dark). With the millions of subpixels on a display, it is quite possible to have a low number of faulty transistors on an LCD. Therefore, a certain number of subpixel anomalies is considered acceptable. Rejecting all but perfect LCD panels would significantly increase the retail price for products using LCD displays. These factors apply to all manufacturers using LCD technology—not just Apple products.

To determine whether or not the display has an acceptable number of pixel anomalies, follow the steps below:

1. Set the display image to one of the following colors: all-white display, all-red display, all-green display, or all-blue display.
2. Using a jeweler's loupe, pocket microscope, or other magnifying device, identify and count each subpixel anomaly:
   - Bright subpixel anomaly = subpixel that is always on
   - Dark subpixel anomaly = subpixel that is always off
3. **Important:** Check the number of subpixel anomalies with the following chart:

LCD Size (inches)	**Acceptable Number of Subpixel Anomalies**			**Replace the Display**		
	Bright	Dark	Both	Bright	Dark	Both
24	up to 8	up to 10	up to 15	9 or more	11 or more	16 or more

4. If the number of subpixel anomalies exceeds the acceptable number listed in the chart, replace the LCD panel.
5. If the number of subpixel anomalies is acceptable, explain to the customer that the pixel anomalies are within specifications, and no repair is necessary.

Important: Do not release the specifications to customers. Instead, inform them that a certain number of subpixel anomalies is considered acceptable, and these factors apply to all manufacturers using LCD technology—not just Apple products.

Hard Drive

Flashing question mark, or an alternating question mark and Mac OS (face or a folder)

Note: When troubleshooting hard drive problems it is a good idea, if possible, to back up any important data. Some troubleshooting steps may require erasing the contents of the hard drive.

1. Boot from the system CD that came with the computer, and open Disk Utility. Does the hard drive show in Disk Utility?
   Yes: Run Repair Disk and Repair Permissions to correct any directory and permissions issues. Go on to Step 2.
   No: Go to Step 3.
2. Did Disk Utility successfully repair directory or permissions?
   Yes: Restart the computer to the hard drive. Go on to Step 3.
   No: Go to Step 3.
3. Did the computer successfully start to the internal Hard Drive?
   Yes: Run Apple Hardware Test version 3A108 or later for this machine and return to the customer if it passes.
   No: Boot the machine to Apple Hardware Test, version 3A108 or later, or to Apple Service Diagnostic for iMac (Mid-2006), version 3S106 or later.
4. Did the machine successfully boot to the Diagnostic?
   Yes: Run the test suites.
   No: Make sure you're using the correct version of the Diagnostic, and that the disc is able to boot another machine that it supports. If so, then try booting from an external optical drive. If this is successful, you should replace the optical drive and retest the machine booting to the diagnostic disc.
5. Did the tests pass?
   Yes: Reinstall the System Software that came with the computer and test.
   No: Replace the component (s) indicated by the test results.

Hard Drive Issues

Note: The following information is for Intel-based and PPC Macintosh drive compatibility

- Drives to be used in booting Intel-based Macintosh hardware should be formatted and partitioned with an Intel-based Macintosh disk utility running on Intel-based Macintosh hardware. That should ensure you get the correct default partition map and structure for reliable booting.
- Intel-based Macintosh CPUs in Target Disc Mode will only mount on PPC machines running Mac OS X 10.4 or later, and may show one contiguous partition rather than separate partitions on the host machine.
- Always make sure to use the OS that came with the machine if you need to reinstall software (ask the customer for the discs if necessary), and the diagnostics specifically designated for that hardware.

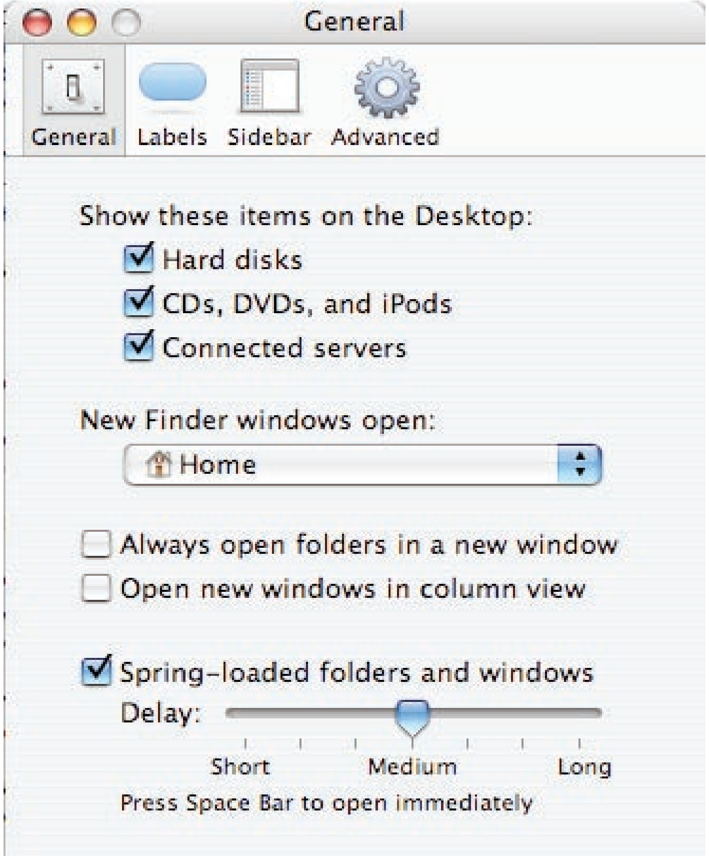
System hangs during normal startup process.

1. Boot from the system CD that came with the computer. Use Disk Utility to verify the hard drive.
2. Using Disk Utility, reformat the hard drive.
3. Check all cable connections to and from the hard drive.
4. Replace the hard drive data cable.
5. Replace the hard drive.
6. Replace the logic board.

Optical Drive

CDs or DVDs don't show up on the Desktop.

1. Select Preferences from the Finder menu and make sure the option to show CDs, DVDs and iPods is checked: in the General window as shown below.



Show these items on the Desktop:

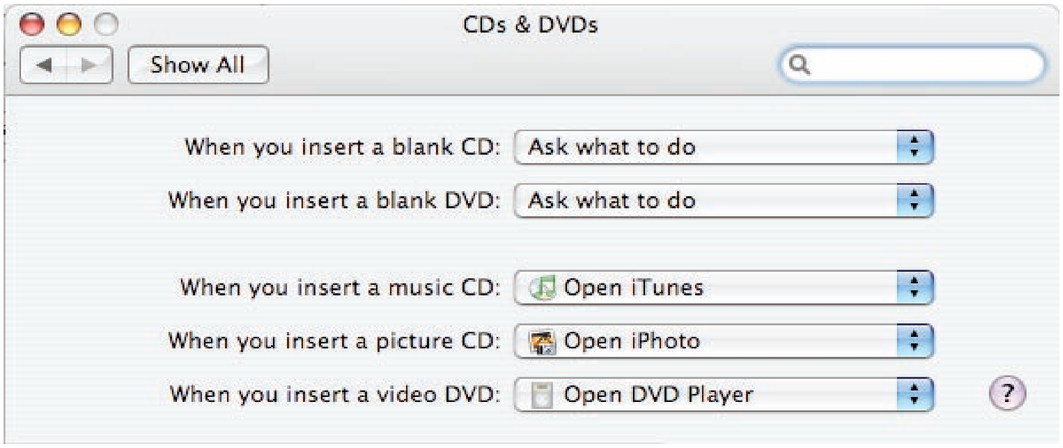
☑ Hard disks
☑ CDs, DVDs, and iPods
☑ Connected servers

New Finder windows open:
Home

☐ Always open folders in a new window
☐ Open new windows in column view

☑ Spring-loaded folders and windows
Delay: Short Medium Long
Press Space Bar to open immediately

2. Select System Preferences from the Apple menu and open the CDs & DVDs preferences window. Make sure that audio CDs are set to launch iTunes and movie DVDs set to launch DVD Player when those media are inserted, as shown below.



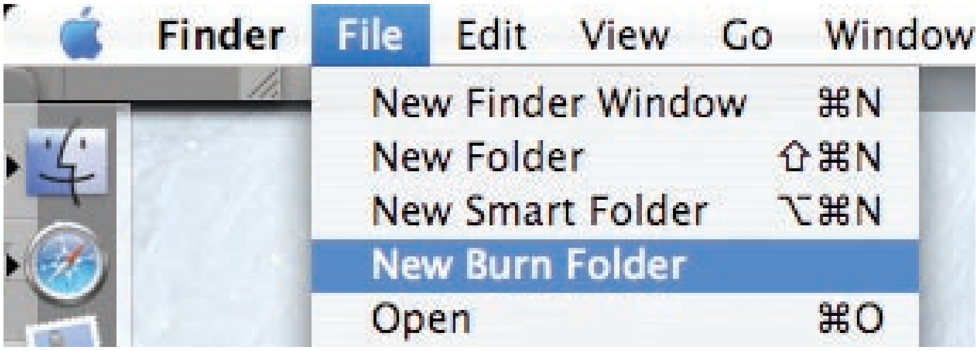
When you insert a blank CD: Ask what to do
When you insert a blank DVD: Ask what to do
When you insert a music CD: Open iTunes
When you insert a picture CD: Open iPhoto
When you insert a video DVD: Open DVD Player

3. Check that the drive can read discs normally. Insert an audio CD and check whether it shows up on your desktop or launches iTunes.
   Does the audio CD mount on the desktop or in iTunes?
   Yes: The drive seems to read CD discs okay. Go on to Step 4.
   No: Make sure the disc is readable by other computers. Try other CD discs. If none mount or no audio CDs launch iTunes, replace the optical drive."
4. Eject the audio CD and insert the iMac Software Install and Restore DVDs that came with the customer's computer, or insert a DVD movie.
   Does this disc show up on the desktop, or does the movie launch DVD Player?
   Yes: The computer is reading CD and DVD media. This may be related to a specific disc or discs the customer is using and you should examine those discs.
   No: The optical disc is reading CD media, but not DVD media. Try other DVD discs. If none mount or movie DVDs do not launch DVD Player, replace the optical drive adapter board
5. If after replacing the optical drive adapter board the drive still won't mount any optical media, replace the optical drive. If the issue persists, then replace the logic board.

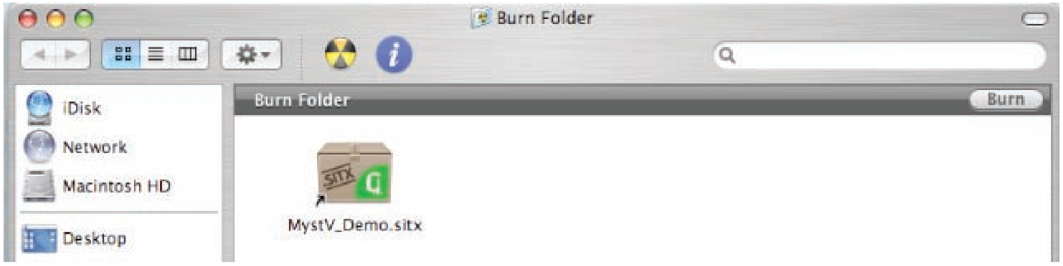
The computer won't burn discs.

1. Check whether the drive can read CDs and DVDs normally. Perform the steps above for "CDs or DVDs don't show up on the Desktop."

2. Try a test burn by creating a Burn Folder, as follows.
   - In the Finder, choose "New Burn Folder" from the File menu.


Finder
File
Edit
View
Go
Window
New Finder Window ⌘N
New Folder ⇧⌘N
New Smart Folder ⌥⌘N
New Burn Folder
Open ⌘O

   - Open the Burn Folder, drag an item inside for testing, and click "Burn" in the upper right corner of the window.


Burn Folder
iDisk
Network
Macintosh HD
Desktop
Burn Folder
Burn
MystV_Demo.sitx

   - When prompted, insert a blank disc and follow the dialog instructions.

   Does the disc burn successfully (problem solved), fail with an error, or is the disc ejected?

3. If the disc fails to burn with an error, check for these error messages.
   Unknown Error -2147352480. See Knowledge Base article 25480 and 25750 for more information.
   Buffer underrun error. See Knowledge Base articles 25480 and 25750 for more information.
   Unknown Error. If you see "Unknown Error" without "-2147352480", you will want to see Knowledge Base article 152224 for more information.

4. If the blank disc is ejected, try another blank disc. If the issue persists, try another brand and speed of blank media; if you're using blank CD media, see if this happens with blank DVD media. If the drive consistently rejects all blank media, or only rejects blank CD media while accepting blank DVD media or vice versa, replace the optical drive adapter board and test.
   Does the drive successfully burn to disc after replacing the optical drive adapter board?
   Yes: Problem solved.

No: Replace the optical drive. Does it burn correctly now?
  Yes: Problem solved.
  No: Replace the logic board.

Discs won’t insert.

1. Is there a disc already in the drive?
   Yes: Eject the disc before inserting another. Refer to Knowledge Base article **51008** - “iMac: If You Can’t Eject a CD or DVD, or Open the Drive Tray”. If none of these options will eject the disc, you may have to disassemble the drive to recover the disc. See Knowledge Base article **86382** - “Macintosh: How to Remove a Stuck Disc From a Slot-Loading Drive.”
   No: Reseat the optical drive. Perform the “Optical Drive” procedure in Take Apart to reseat the drive in the mounting aperture and reconnect the optical drive to the logic board.
2. After reinstalling the optical drive, can you now insert a disc?
   Yes: Issue resolved. Run diagnostics and return the system to the customer.
   No: Replace the optical drive adapter board.
   Yes: Problem solved. Run diagnostics and trying inserting a disc again.
3. After replacing the optical drive adapter board, can you insert a disc now?
   Yes: Issue resolved. Run diagnostics and return the system to the customer.
   No: Replace the optical drive.

Optical disc constantly ejects.

1. Disconnect all peripheral devices, especially the mouse in cases where the disc is constantly ejecting. Retest. If the issue is resolved, reconnect peripherals one-at-a-time until faulty peripheral is identified.
2. Try cleaning the disc. If the disc is dirty or scratched, it may not mount.
   Is the issue resolved?
   Yes: Problem solved.
   No: Try a different disc. If the issue persists, go on to the next step.
3. Boot from Apple Hardware Test (hold down the "D" key at startup). If you can boot to this volume, run the Quick and Extended tests.
   Does the unit pass the tests?
   Yes: Restart to the internal hard drive and test again.
   No: Replace the component (s) indicated by the test results. If you cannot boot to Apple Hardware Test because it ejects, go on to step 4.
4. Boot from the system install DVD (use Startup Manager, hold down the Option key at startup). If you can boot from this volume, perform an Archive and Install with the Install DVD that came with the computer and test.
   Is the issue resolved?
5. **Yes:** Problem solved.
   No: If you cannot boot to Apple Hardware Test or to the Install DVD because they eject, reseat the optical drive adapter board to the logic board and retest.
6. Replace the optical drive adapter board.
7. Replace the optical drive.
8. Replace the logic board

Fan Sound

Fans running at full speed after the computer turns on

The customer may have entered a diagnostic mode that causes the fans to run at full speed.* Restarting the system will not restore normal fan operation. To solve the problem, the user or technician should do the following:

1. Shut down the system.
2. Disconnect the power cord and wait 15 seconds.
3. Reconnect the power cord and wait 5 seconds.
4. Power on the system.

***Note**: Customers reporting this symptom should be told to press the power button AFTER the power cord has been fully inserted. Inserting the power cord while pressing the power button will cause the fans to run at full speed.

Loud fan noise coming from inside the computer

The iMac (24-inch) has a trio of fans that circulate air throughout the system. It also includes temperature sensors, and advanced thermal software that spins the fans fast or slow as needed. As the system usage increases, the fans will adjust their speed using advanced thermal software to meet the cooling needs of the system.

Under normal conditions, rotating fans will make a slight hum that varies in relationship with their rotational speed and the amount of air that they are moving. In addition, the normal functioning of the hard drive and optical drive will generate additional whirring and scratching sounds that may be audible. All of these sounds are normal and do not indicate a failure with your computer.

To begin troubleshooting a possible fan issue, we need to qualify the sound that you're experiencing.

1. Does the sound occur only under specific light/heavy usage conditions?

   Yes: CPU intensive applications such as iTunes, Garage Band, DVD Player, etc., or two or more applications open at once will cause the fans to run at an increased rate making them more noticeable. If the sound only occurs when one or more of these applications is running, this is normal.

   No: If the sound isn't affected by CPU intensive application it may be due to other factors. Go on to the next step.

2. Is the sound always present, or does the sound vary?

   The sound is always present: The normal functioning of the hard drive and optical drive will generate additional whirring and scratching noises that may be audible. Check whether this sound is related to one of the components. Go to step 4.

The sound varies: Under normal conditions rotating blowers will make a slight hum that varies in relationship with their rotational speed and the amount of air that they are moving. Let's see if this is indeed the case. Go to Next Step.

3. Are the fans making a normal humming sound that increases/decreases in relation to processor usage? As the fans increase their speed to cool the system the sound level will increase.

   Launch the Activity Monitor application included with Mac OS X in the Utilities folder to determine whether the noise corresponds with heavy usage of the CPU. Does fan activity increase / decrease with the CPU Usage graph in Activity Monitor? Check by running CPU intensive applications such as iTunes.

   Yes: This is normal operation and none of the fans require replacement.
   No: If the fan activity does not coincide with CPU usage, the sound you're hearing may not be fan activity. Go to the Next Step.
4. The normal functioning of the hard drive and optical drive will generate additional whirring and scratching noises that may be audible. We can isolate these noises by booting the computer to the iMac Install Mac OS X Install Disc 1.

   - Place the disc in the drive, and restart your machine while holding down the "C" key as the machine starts up.

   - Once at the Installer window, choose Open Disk Utility from the Installer Menu.

   - Once Disk Utility is open, select the system's hard drive and on the toolbar choose Unmount. **Note:** if the drive has multiple partitions, unmount each of these partitions. This will spin down the hard drive. The optical drive will also be busy at this time; wait a moment for the optical drive to spin down also and then listen to the machine.

   Is the sound still present?

   Yes: With the hard drive and optical drive inactive, all you should be hearing are the fans in the machine. While booted to the CD, these fans should be running at a lower level since CPU activity is low with both drives inactive. Fan sound that includes objectionable ticking, whistling, or squealing may require further investigation and/or replacement of the particular fan. Go on to the next step.

   No: The normal functioning of the hard drive and optical drive will generate additional whirring and scratching sounds that may be audible. All of these sounds are normal and do not indicate a failure with the machine. If you wish to check the health of the hard drive, see Knowledge Base article 152349, "Replacing a disk before it fails."
5. Shut down the computer, remove the power cord and any other connected cables, and

remove the access door, front bezel, and EMI shield.
Stand up the computer, plug it in, and start it up by pressing the external power button.

As the machine starts up, listen carefully to each of the three fans, and see if you can locate the fan from which the objectionable ticking, whistling, or squealing sound is coming. The CPU fan is the left-most fan, the hard drive fan is in the center, and the optical drive fan is on the right.

Can you pinpoint the fan making the sound?

Yes: Replace the noisy fan.

No: If you can hear an objectionable ticking, whistling, or squealing sound, but you cannot identify the source of the sound, contact Apple Technical Support.

Audible buzzing, whining, or ticking noise.

The iMac (24-inch) contains several mechanical devices such as motors and fans that may make audible buzzing, ticking, or whining noises when they are operating in a normal manner. The sounds will vary depending on how the system is used.

When troubleshooting abnormal noises try the following:

1. Verify that the computer is running a supported version of the Mac OS X operating system. If an earlier version of the operating system has been installed then the fans may run at excessive speeds.
2. Determine that this noise is related to the computer by removing and shutting down all other devices in the vicinity of the computer that could be causing a sound.
3. Eject any media inserted into the optical drive. The optical drive will make a variety of normal sounds when accessing the optical media.
4. Quit all applications and test the computer again. Processor intensive applications may cause the fans to run at a higher RPM and therefore be more audible.
5. Boot to the latest version of Apple Service Diagnostic for iMac (24-inch) and select the EFI test suite by holding down the D key during startup. The diagnostic tests fan speeds and thermal sensor functionality. Should tests fail, replace any parts indicated by the diagnostic.
6. Reboot the computer and check the computer again. If the noise persists and is unusually loud, contact Apple Technical Support.

Fans are running at a constant high speed.

If the fans on the system are running at a constant high speed, or ramp very quickly to high speed and do not vary once this speed is reached, the fans are most likely receiving incorrect thermal input. Follow these steps:

1. **Reset the SMC** and then test to see if the fans still exhibit the issue.
2. Boot to the EF1 tests of the latest version of Apple Service Diagnostic for iMac (24-inch). This will test the fans and thermal input of the sensors. If the tests fail, replace the component (s) indicated by the test.

AirPort

Not able to connect wirelessly with AirPort

1. From the Apple menu, choose About this Mac.

2- Click on More Info. System Profiler should open.

3- In System Profiler, in the column on the left, look under Network for a line called "AirPort Card". Select that line.

4- Does the section to the right say "No Information Found"?

> **Yes:** The computer doesn't realize it has an AirPort card installed. Go to step. 5
>
> **No**: The iMac recognizes that it has an AirPort card installed. Go to step 6.

5- Remove the access door, front bezel, right speaker, and two card mounting screws, and reseat the AirPort card. Re-install the two card mounting screws and check System Profiler again to see if the computer sees the AirPort card. Does it recognize the card now?

> **Yes**: Problem solved. Replace the lower EMI shield and front bezel and re-test the system to verify that the original symptom is resolved.
>
> **No**: Replace the AirPort card. Refer to the Take Apart section for AirPort Card. If the issue persists after replacing the AirPort card, replace the logic board.

6- Now that we know the iMac recognizes the AirPort card, check the antenna cables. If the antennas are not plugged in all the way, you may have a very short AirPort range.

7- Remove the access door, front bezel, right speaker, and two card mounting screws. Disconnect the card, and reconnect the antenna cable connectors to the card. Make sure the antenna connectors are firmly seated. Replace the card and other components and retest.

8- If the antennas are plugged in properly and the AirPort card is recognized but the problem persists, there are a number of other things that could cause issues with wireless networking. Refer to Knowledge Base document 106858 for more networking information.

9- Replace the AirPort card.

10- Replace the AirPort antennas.

11- Replace the logic board.

Bluetooth

Bluetooth devices won’t sync with my computer

1. Make sure the computer has a Bluetooth board installed. Open System Preferences (from the Apple menu, choose System Preferences) and verify that “Bluetooth” appears in the Hardware section of the window.

2. Locate the Bluetooth board inside the computer. Reseat the Bluetooth board and the Bluetooth antenna.

3 Turn on Bluetooth. In System Preferences, click Bluetooth and then click the Settings tab. If you don’t see “Bluetooth Power: On,” click the “Turn Bluetooth On” button. Make sure that you also enable Bluetooth on your device too (please refer to your device’s documentation for instructions).

4 Set up a new device. To set up a Bluetooth phone or PDA, click the Devices tab in Bluetooth preferences and then click “Set Up New Device” to open the Bluetooth Setup Assistant. Follow the onscreen instructions to set up your device. To set up an Apple Wireless Keyboard and Mouse, open System Preferences, click Keyboard & Mouse, click the Bluetooth tab, and then click “Set Up New Device” to open the Bluetooth Setup Assistant. Follow the onscreen instructions to set up your keyboard and mouse.

5 Recharge or replace your Bluetooth device’s battery. If your Bluetooth device’s battery is low, you may experience connection issues.

6 Download and install the latest software for the device.

7 Check for a Bluetooth update. Choose Software Update from the Apple menu (make sure that your computer is connected to the Internet). If newer Apple Bluetooth software exists, Software Update will find it.

8 Check for signal spoilers. Avoid situations in which metal objects come between your device and computer. Don’t put the computer under a metal desk or locked away behind a metal cabinet. Keep cordless phone base stations, microwave ovens, and other electrical devices that operate on a 2.4 GHz bandwidth away. And make sure that the device and computer aren’t more than 30 feet apart from each other.

9 Restart your computer. You may also want to try resetting your computer’s PRAM and NVRAM.

10 Reset your Bluetooth device. First try turning your device off and then on again. If that doesn’t work, see if you can reset your device.

11. Replace the Bluetooth board and test the computer again.

12. Refer to the Bluetooth Support site at http://www.apple.com/support/bluetooth/.

13 Replace the logic board.

IR Remote

Remote won't communicate with system applications such as iTunes or iPhoto, or with the optical drive.

Make sure of the following when using the Apple Remote:

- You are within 30 feet of the front of the computer.
- You have an unobstructed line-of-sight to the front of the computer.
- You are pointing the lens end of the Apple Remote directly at the front of the computer.
- The computer is powered on and awake.
- The "Disable remote control infrared receiver" checkbox in the Security pane of System Preferences is NOT checked.
- Make sure the active application works with Apple Remote. Apple Remote uses Front Row, and from Front Row it can access DVD Player, iPhoto, iTunes, and QuickTime Player.
- Make sure the remote is paired with the computer. Access the System Preferences/Security pane and check "Unpair" if available. Close the Security pane, and re-pair the Apple Remote with the computer. See Knowledge Base article **302545**.

1. Use a digital camera to test your Apple Remote.
   If you have a digital camera or DV camera with an LCD display, you can use it to see if your Apple Remote is emitting a signal. Infrared beams are invisible to the human eye, but most digital cameras and video cameras use Charged-Coupled Device (CCD) chips or image sensors that are sensitive to infrared light.

   To use a camera to test your Apple Remote, follow these steps:
   • Turn on your digital camera or DV camera and remove any lens cover.
   • Point your Apple Remote toward the camera lens.
   • Press and hold the Menu button on the remote while looking at your camera's LCD display.
   • If you see a faint blinking light coming from the Apple Remote in the camera's LCD, then the remote is working properly.
   • If you don't see any blinking light in the camera's LCD, replace the battery in your Apple Remote and then test it again with your computer (see "iMac G5 (iSight): How to replace the Apple Remote battery" for instructions). (KBase article **302543**)

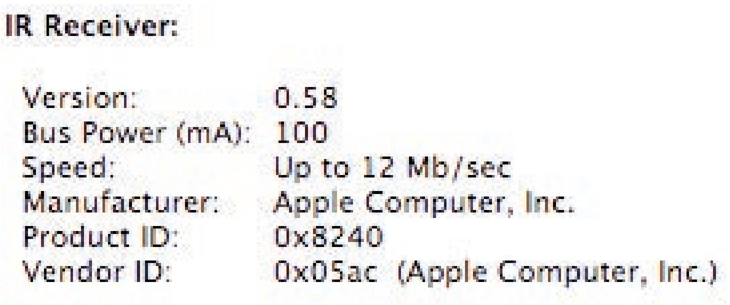
2. Does the IR remote now communicate with an active application that works with Apple Remote?
   Yes: IR remote is functioning correctly.
   No: Replace Apple Remote.

IR Sensor/Receiver

Supported applications do not respond to input from the remote control.

1. Perform the checks above under “IR Remote” to verify that the Apple Remote is functioning correctly, and retest. Do supported applications now respond to input from the IR remote?
   Yes: Problem resolved.
   No: Go to the next step.

2. Verify that the IR Sensor can be seen in the Apple System Profiler. Open the Apple System Profiler and click on the “USB” section. You should see the following listed:



```
IR Receiver:

  Version:          0.58
  Bus Power (mA):   100
  Speed:            Up to 12 Mb/sec
  Manufacturer:     Apple Computer, Inc.
  Product ID:       0x8240
  Vendor ID:        0x05ac  (Apple Computer, Inc.)
```

   Do you see the IR Receiver listed under the USB section of the Apple System Profiler?
   Yes: Go on to the next step.
   No: Replace the IR cable and retest. Refer to the “IR Board” take apart procedure
   Do supported applications now respond to input from the IR remote?
      Yes: Problem resolved.
      No: Replace the IR sensor board and retest. Refer to the “IR Board” take apart procedure.
   If the issue persists after replacing these parts, replace the logic board.

3. Access System Preferences and click Security. In the Security pane check the following:
   • Make sure “Disable remote control infrared receiver” checkbox is not checked.
   • If “Unpair” is available in the Security pane of System Preferences, another Apple Remote may be paired to the computer (pairing allows only one Apple Remote to control the computer). To delete a pairing between the remote and the iMac G5 (iSight), click Unpair. (You may have to enter your Administrator password to make changes in the Security pane.)
   After making sure these features are disabled, does the Apple Remote control the machine now?
   Yes: Problem resolved.
   No: Replace the IR sensor board and retest. Refer to the “IR Board” take apart procedure.

Built-in iSight Camera

The built-in camera is not recognized.

1. Boot the computer to the desktop and launch iChat AV. **Note**: You do not need to be connected to a network to use iChat AV to troubleshoot. Verify that the correct versions of Mac OS X and iChat AV are installed. Reinstall or update software as needed.
2. Open the iChat AV preferences and click on the 'Video' icon. Verify whether the camera is recognized by the iChat AV software. Is the camera recognized?

   Yes: the camera is recognized and video preview is normal: This indicates the camera is functioning. Pull down the 'Video' options from the menu bar and verify that the camera is enabled. The camera must be enabled to function.

   No: the camera is not recognized and no video preview is visible. This indicates the camera may not be functioning properly. Open the iMac and inspect the camera board (inside the front bezel) and the attached cable. Reseat the cable on the camera board and check the other end of the camera cable connections to the logic board. The camera cable connectors are on the right side of the logic board, below the optical drive and to the right of the fan. Go on to the next step if this didn't solve your problem.
3. Replace the camera board.
4. Replace the camera cable.
5. If the iSight camera still doesn't appear in System Profiler on the USB bus after replacing the camera board or camera cable, replace the logic board.

Camera recognized but no video.

1. Verify that the lens assembly for the iSight camera located in the top middle of the front bezel is not obstructed by anything including Post-It notes or other objects.
2. Replace the camera board in the front bezel and retest.

Camera image quality poor.

The built-in camera is recognized by iChat AV and other supported video applications however the image quality is poor.

1. Verify that the lens assembly for the iSight camera is clean. Fingerprints and other contaminants can affect image quality. Clean the lens using a lint free lens cleaning cloth being while being careful not to scratch the lens.
2. Verify that there is sufficient lighting to produce a good quality image. Lighting which is comparable to that found in a well lit office will product a good quality image. If possible, avoid having a brightly lit background. Diffused lighting is preferred over direct lighting.
3. Launch iChat AV and open the iChat AV preferences. Click on the 'Video' tab. Is the video quality acceptable?
   Yes: The camera is functioning normally. The image quality problems may be caused by

bandwidth limitations when using iChat over the internet. Instruct the customer to use the iChat AV connection doctor feature to verify that there is sufficient bandwidth to have a video iChat session without a significant degradation of image quality.

No: The camera may not be functioning normally. Replace the front bezel for poor image quality. If the issue persists, replace the camera board and retest.

Camera recognized but no audio.

1. Open the System Preferences window and click on Sound.
2. Verify that the built in iSight camera has been selected as the device for sound input.
3. Verify that the volume settings (on the slider bar) are appropriate.
4. Launch iChat AV and open the iChat AV preferences. Click on the 'Video' icon. Speak into the microphone while monitoring the microphone level indicator. Does the line level meter respond while you are speaking?

   Yes: The microphone circuit is functioning correctly. Check the preference settings of any supported AV applications the customer is experiencing problems with to make sure that the microphone feature is enabled and that the internal iSight microphone has been selected as the input device.

   No: Inspect the camera/microphone cable attached to the camera board inside the front bezel. If the cable is damaged, replace the front bezel and retest. If the issue persists, replace the camera/microphone cable.

Audio quality is poor.

The camera is recognized but the built-in microphone's audio quality is poor.

1. Open the System Preferences window and click on Sound.
   - Verify that the built-in camera has been selected as the sound input port.
   - Verify that the input volume settings are appropriate. Use the volume level meter to verify settings.
2. Open iMovie and create a new project. Click on the Audio button and record a sound sample. Is the sound quality acceptable?

   Yes: The microphone is functioning normally. The audio quality problems may be caused by bandwidth limitations when using iChat over the internet. Instruct the customer to use the iChat AV connection doctor feature to verify that there is sufficient bandwidth to have an audio iChat session without a significant degradation of audio quality.

   iChat AV allows the user to limit the allocated bandwidth which could impact audio quality. Check the settings and increase the bandwidth if needed.

   No: The microphone may be faulty. Replace the front bezel which houses the microphone.

Speakers

Can’t hear sound from the speakers.

1. Disconnect any external microphones, speakers, or headphones.
2. Access System Preferences and select Sound. In the Sound pane, select Output and make sure the Internal speakers are selected as the device for sound output, the Output volume is adequate, and Mute is not selected. Do you have sound now?
   Yes: Problem resolved.
   No: Go to the next step.
3. Reset parameter RAM. Press Command-Option-P-R during startup but before “Welcome to Macintosh” appears. Do you have sound now?
   Yes: Problem resolved.
   No: Go to the next step.
4. Plug headphones or external speakers into the Line out /headphone port. Do you have sound through these devices when plugged in?
   Yes: Verify that the speaker cable connector is securely attached to the logic board. If the issue persists, replace the speakers.
   No: Replace the logic board
5. Verify that the speaker cable connector is securely attached to the logic board. Do you have sound now?
   Yes: Problem resolved.
   No: Replace the speakers.

I hear sound out of only one speaker.

1. Are there any external microphones, speakers or headphones plugged into the iMac?
   Yes: Disconnect any external microphones, speakers, or headphones. Do you hear audio from both of the built in speakers on your iMac?
      Yes: Good. It looks like the built-in speakers are working properly. This may be an issue with the microphone, speakers or headphones that were plugged into your iMac. Please work with the manufacturer to troubleshoot this issue.
      No: Go to step 2.
   No: Check your speaker balance. If your balance setting was set to the left or right speaker, you would only hear sound from one speaker. Go to step 2.
2. Open System Preferences. (System Preferences can be found under the Apple menu.)
3. Click once on the sound icon. Click once on the Output tab.
4. Make sure your balance setting is in the middle. After adjusting the audio balance, do you have audio from both speakers now?
   Yes: It looks like the issue was the balance was not set properly.
   No: Replace the speakers.
5. If the speakers did not solve the problem, replace the logic board.

Mouse

My mouse doesn't work at all.

1. Turn over the mouse and check the if the red LED on the underside of the mouse. Is the LED lit?

   Yes: The mouse has power. Try using the mouse on another surface. Non-reflective, opaque surfaces without repetitive patterns work best. The surface should be clean, but not shiny. Optical mice won't work on glass, mirrored surfaces, glossy materials or mouse pads with pictures.

   No: There is no power to the mouse. Try plugging the mouse into one of the USB ports on the machine. If the mouse won't power on from any USB port, try it on a known good machine. If the mouse fails to power on with known good machine, replace the mouse. If the mouse will power on with a known good machine, replace the main logic board.
2. If the underside LED is lit and the surface is good, and the mouse still does not track, try plugging the mouse into another USB port on the machine. Does the mouse track now?

   Yes: Issue resolved. Try the other USB ports on the system to make sure you don't have a bad port.
   No: Try using a known good mouse. If a known good mouse resolves the issue, replace the mouse. If a known good mouse does not resolve the issue, replace the main logic board.

My mouse works intermittently (the cursor freezes randomly) or is slow to respond.

1. Try using the mouse on another surface. Non-reflective, opaque surfaces without repetitive patterns work best. The surface should be clean, but not shiny. Optical mice won't work on glass, mirrored surfaces, glossy materials or mouse pads with pictures. Does the mouse track correctly on a proper surface?
   Yes: Issue resolved.
   No: Check the Mouse Tracking setting in the Mouse control panel.
2. Boot to another volume (like the System Install Disc). Does the mouse track properly now?
   Yes: Reinstall System Software
   No: Try a using a known good mouse. If a known good mouse resolves the issue, replace the mouse. If the issue persists with a known good mouse, replace the main logic board.

My Apple wireless mouse is slow or not tracking correctly.

Refer to Knowledge Base document 93369 - Apple Wireless Mouse is slow or not tracking smoothly.

Keyboard

Certain keys or none of the keys on the keyboard function.

1. Unplug all devices from your computer, including your mouse and keyboard as well as printer, scanner, external hard drives, and hubs. (Warning: Some devices may require you to perform steps before it is safe to unplug them, e.g., external storage devices.) Be sure to unplug your hub, if you have one.
2. Plug your keyboard into the back of your computer firmly and securely. Plug your mouse into the back of your computer firmly and securely. Take special care to make sure the connector is completely in the socket. Go on to step 3.
3. Does your keyboard work now?
   Yes: Problem solved.
   No: Unplug your keyboard and plug it into another USB slot on the back of your iMac. Does it work now?
   Yes: Replace the logic board.
   No: Unplug your keyboard and plug your mouse into the port the keyboard just occupied. Go on to step 4.
4. Does your mouse work now?
   Yes: Replace the keyboard.
   No: Replace the logic board.

My keys are sticky or slow to respond.

1. Try a known good keyboard.
2. Open System Preferences. Click on the keyboard and mouse icon. Adjust the "key repeat speed and delay until repeat" rate.
3. Replace the keyboard.

When I type, strange characters appear on the screen.

1. Depending on your iMac's settings, a simple keystroke can change your keyboard from English to Japanese. This can result in some pretty funny characters showing up when you type. To switch to the US keyboard,
2. Open System Preferences.
3. Click on the International icon.
4. Click on the Input Menu near the top of the screen.
5. Scroll down the list and uncheck any non-US keyboard layouts.
6. Close the System Preferences. Try typing a few characters. Did is solve the problem?
   Yes: Problem solved.
   No: Replace the keyboard.

Service Source

Views

iMac (24-inch)

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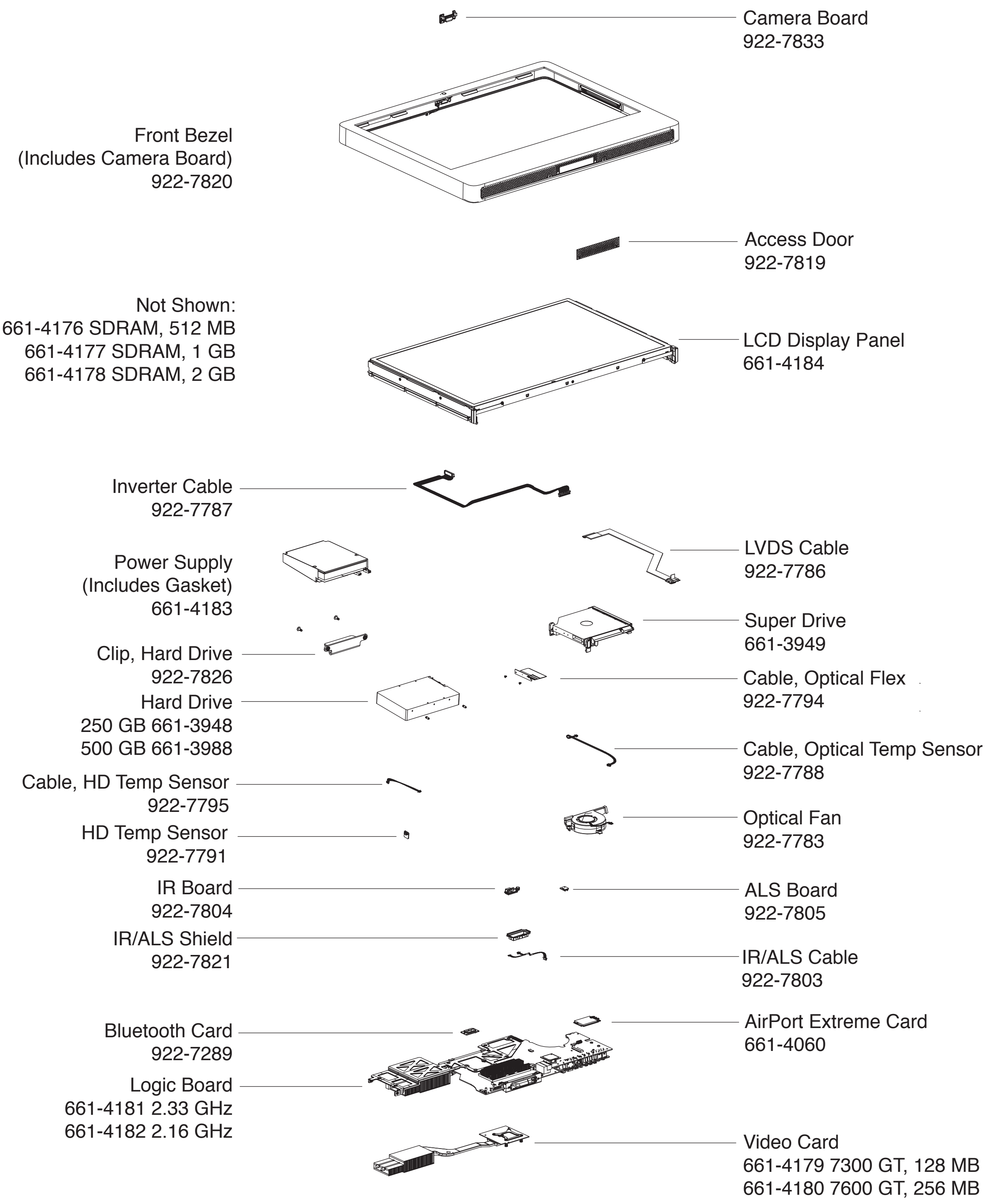
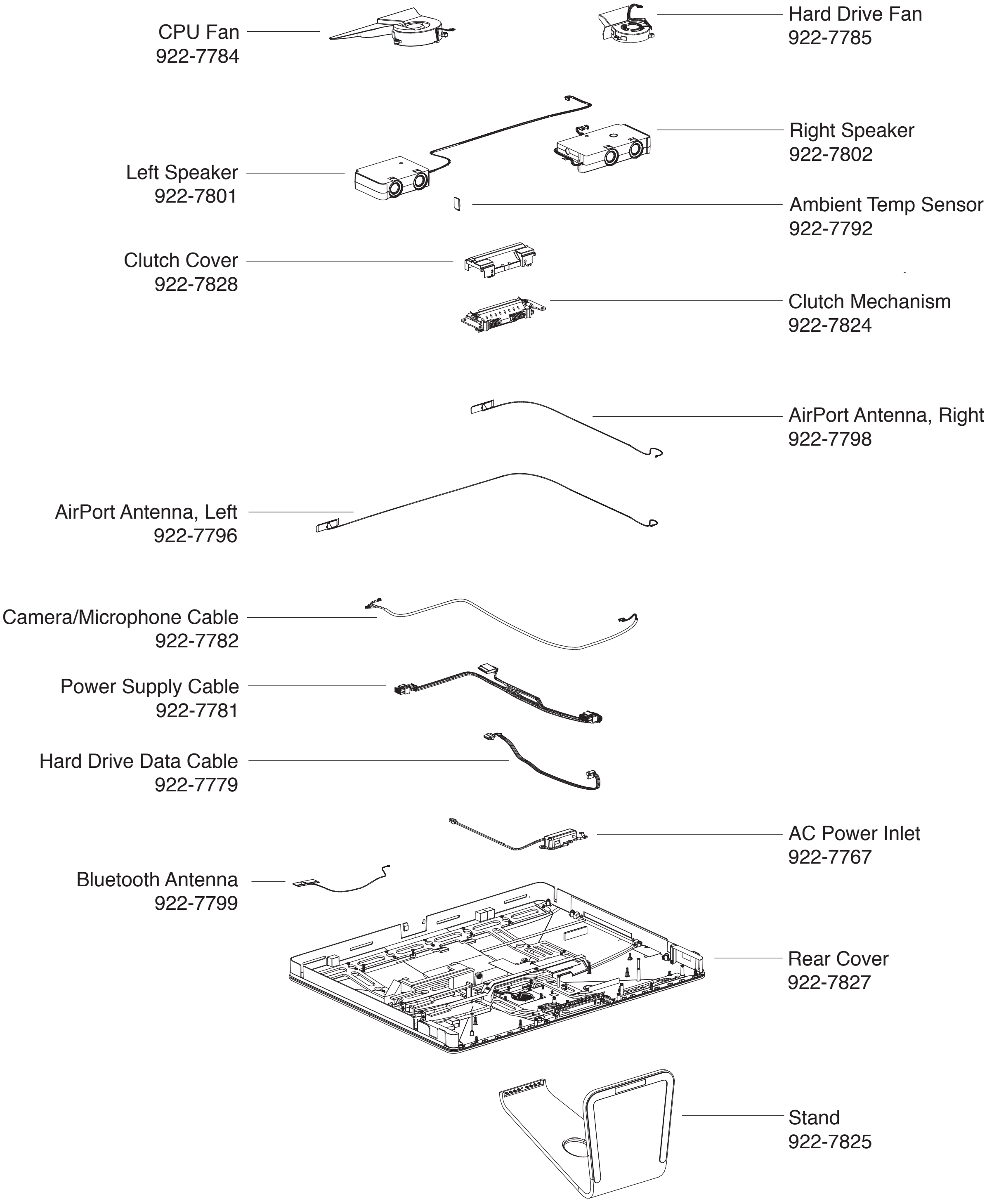
iMac (24-inch)—Upper Exploded View


Camera Board
922-7833
Front Bezel
(Includes Camera Board)
922-7820
Access Door
922-7819
Not Shown:
661-4176 SDRAM, 512 MB
661-4177 SDRAM, 1 GB
661-4178 SDRAM, 2 GB
LCD Display Panel
661-4184
Inverter Cable
922-7787
LVDS Cable
922-7786
Power Supply
(Includes Gasket)
661-4183
Super Drive
661-3949
Clip, Hard Drive
922-7826
Cable, Optical Flex
922-7794
Hard Drive
250 GB 661-3948
500 GB 661-3988
Cable, Optical Temp Sensor
922-7788
Cable, HD Temp Sensor
922-7795
HD Temp Sensor
922-7791
Optical Fan
922-7783
IR Board
922-7804
ALS Board
922-7805
IR/ALS Shield
922-7821
IR/ALS Cable
922-7803
Bluetooth Card
922-7289
AirPort Extreme Card
661-4060
Logic Board
661-4181 2.33 GHz
661-4182 2.16 GHz
Video Card
661-4179 7300 GT, 128 MB
661-4180 7600 GT, 256 MB

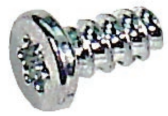
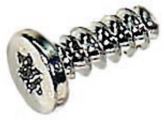
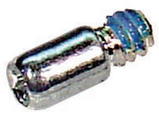
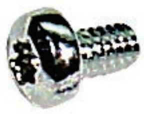
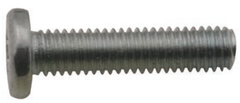
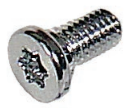
iMac (24-inch)—Lower Exploded View


CPU Fan
922-7784
Hard Drive Fan
922-7785
Right Speaker
922-7802
Left Speaker
922-7801
Ambient Temp Sensor
922-7792
Clutch Cover
922-7828
Clutch Mechanism
922-7824
AirPort Antenna, Right
922-7798
AirPort Antenna, Left
922-7796
Camera/Microphone Cable
922-7782
Power Supply Cable
922-7781
Hard Drive Data Cable
922-7779
AC Power Inlet
922-7767
Bluetooth Antenna
922-7799
Rear Cover
922-7827
Stand
922-7825

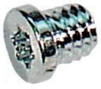
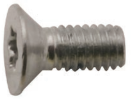
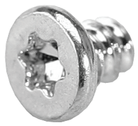
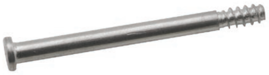
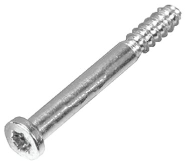
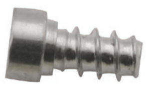
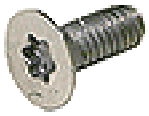
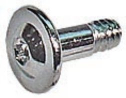
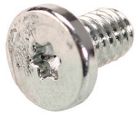
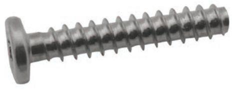
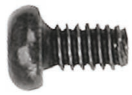
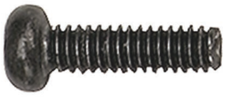
Screw Chart

Screw Chart: iMac (24-inch): page 1 of 3

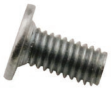
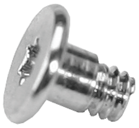
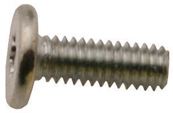
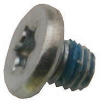
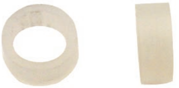
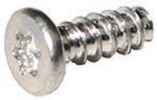
Note: Screws are not to scale.

922-6800 T10  - Logic board to rear cover (5) - AC power inlet to rear cover (3) - Cable channel to rear cover (2)	**922-6850 T10**  Chassis to rear cover	**922-7001 T8, round head**  Hard drive pins (2)
922-7010 T6  - Bluetooth card to Logic (2) - AirPort card to Logic (2) - LVDS cable to Logic (2)	**922-7159 T10**  Power supply to chassis (2)	**922-7163 T10**  LCD bracket to 24-inch LCD (2)

Screw Chart: iMac (24-inch) page 2 of 3

922-7069 **T10**  AC power inlet to chassis ground (1)	**922-7813** **T10**  Stand to clutch mechanism (8)	**922-7816** **T10**  Logic board support to rear cover (2)
922-7811 **T10**  Left speaker, 24-inch (1)	**922-7810** **T10**  Right speaker, 24-inch (1)	**922-7815** **T8**  LCD display to rear cover (8)
922-7011 **T8**  Front bezel to bottom frame (4)	**922-7019** **T8**  Hard drive clip to hard drive (2)	**922-7020** **T10**  Clutch mechanism to chassis (4)
922-7812 **T10, self-tapping**  Power supply, left side (2)	**922-7807** **T6**  IR board to logic board (1)	**922-7806** **T6**  ALS board to IR board (1)

Screw Chart: iMac (24-inch) page 3 of 3

922-7814 **T10, machine**  Logic board to chassis (3)	**922-7817** **T6**  Optical flex cable to optical drive (2)	**922-7970** **T8**  Video card to logic board (2)
922-7971 **T10**  Video card heatsink support (1)	**922-7972** **spacer**  Video card to logic board (2)	**922-XXXX**  Logic board, 9mm, (on right and left side of memory slot)